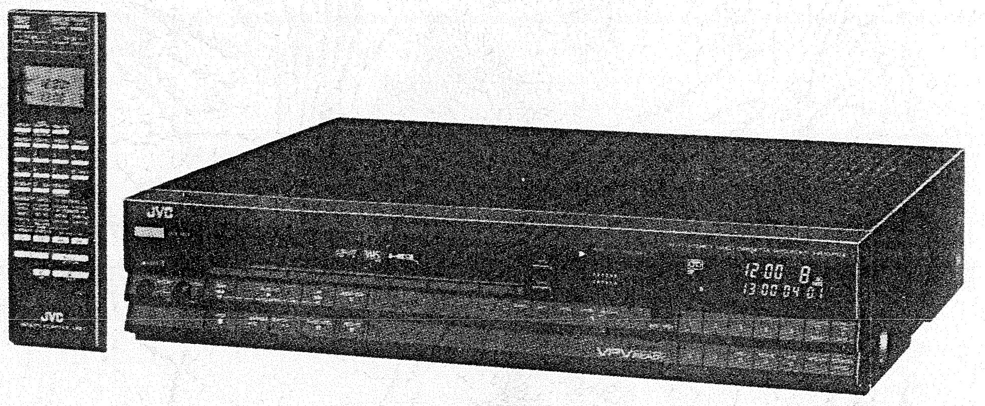
JVC

SERVICE MANUAL

Hi-Fi STEREO VIDEO CASSETTE RECORDER VHS PAL

HR-D750E/EG



SPECIFICATIONS

Format	: VHS PAL standard with Hi-Fi audio
Video recording system	: Rotary two-head helical scan system with a slant double-azimuth combination video head
Hi-Fi audio recording system	: Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	: 2 Hi-Fi audio channels 1 normal audio channel
Video signal system	: PAL colour and CCIR monochrome signals, 625 lines
Tape width	: 12.65 mm
Tape speed (SP)	: 23.39 mm/sec
(LP)	: 11.70 mm/sec (Hi-Fi audio only)
Maximum recording time (SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette (Hi-Fi audio only)
Temperature	
Operating	: 5°C to 40°C
Storage	: –20°C to 60°C
Power requirement	: 220 V∿, 50/60 Hz
Power consumption	: 35 W
Video	
Input	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	: 1.0 Vp-p, 75-ohms, unbalanced
Signal-to-noise ratio	: 43 dB (Rohde & Schwarz noise meter) with picture sharpness control at centre position
Horizontal resolution	: 250 lines with picture sharpness control at centre position
Audio	
Input	: Mic: –67 dBs, high impedance, unbalanced : AUDIO IN connector (RCA x 2): –8 dBs, 50 k-ohms, unbalanced : AUDIO/VIDEO socket (21-pin Peri connector): –3.8 dBs (CENELEC standard), 10 k-ohms, unbalanced
Output level	: AUDIO/VIDEO socket (21-pin Peri connector): –3.8 dBs (CENELEC standard), high impedance load : AUDIO OUT connector (RCA x 2): –6 dBs, high impedance load
Output impedance	: Less than 1 k-ohm, unbalanced
Signal-to-noise ratio	: More than 40 dB
Frequency range	: 70 Hz to 10,000 Hz
Hi-Fi audio	
Frequency response	: 20 Hz – 20,000 Hz
Dynamic range	: More than 90 dB
Wow and flutter	: Less than 0.005 % WRMS
TV tuner/RF section	
Channel storage capacity	: 48 channels
Aerial input	: VHF 47 – 89 MHz 104 – 300 MHz 302 – 470 MHz UHF 470 – 862 MHz
Aerial output	: UHF channels 32 – 40 (Adjustable)
Digital clock/timer	
Clock display	: 24-hour fluorescent digital display with day and date indication
Reference frequency	: Quartz controlled
Start time setting	: Within one year
Programming capacity	: 8 programmes
Dimensions	: 435 mm(W) x 95 mm(H) x 332 mm(D)
Weight	: 6.8 kg
Provided accessories	: Aerial cable, Infrared remote control, "R6"-size battery x 2, Audio cable (RCA-RCA)
Optional accessory	: VPS adapter (VU-V110E) VPV adapter (VU-V120E) VPS/VPV adapter (VU-V100E)

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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No. 82067
August 1988

NOTE: For a technical description, please refer to Technical Guide VTG82027 HR-D750 PAL.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

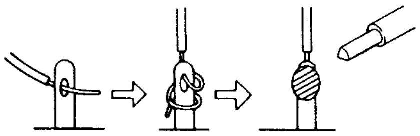


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

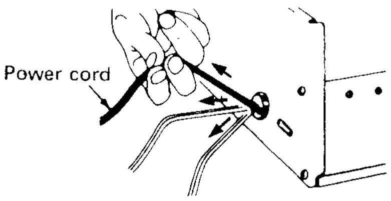


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

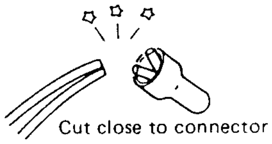


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

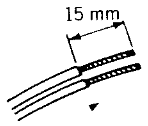


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

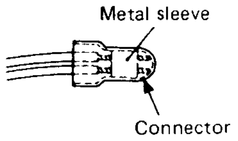


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

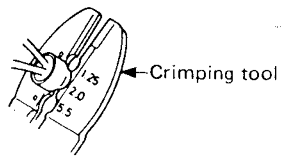


Fig. 6

(5) Check the four points noted in Fig. 7.

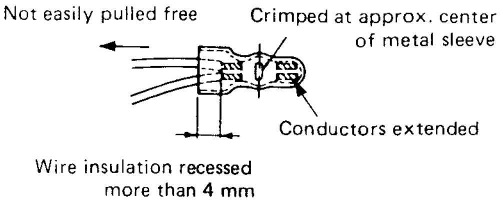

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

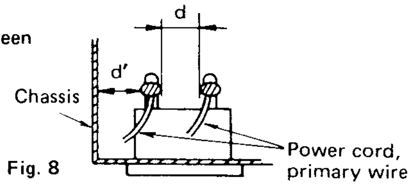


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

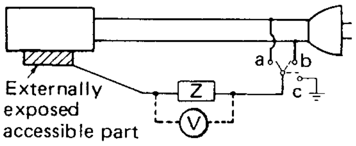


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

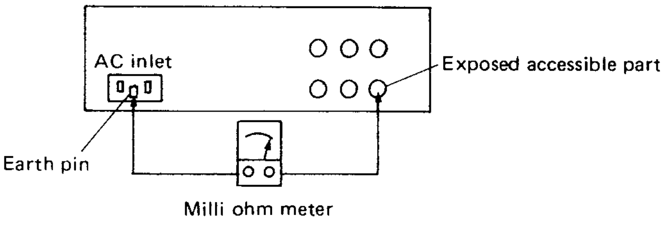


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

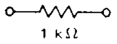
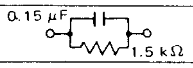
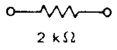
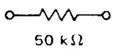
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan		i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada		i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia		i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
			i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

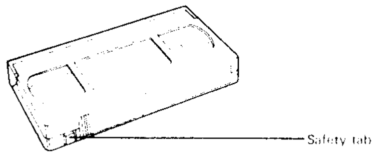
PRECAUTIONS

Handling and storage

- Avoid using the recorder under the following conditions:
  - extremely hot, cold or humid places,
  - dusty places,
  - near appliances generating strong magnetic fields,
  - places subject to vibrations,and
  - poorly ventilated places.
- Be careful of moisture condensation.
  Avoid using the recorder immediately after moving from a cold place to a warm place or soon after heating a room which was cold. The water vapour in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the recorder.
- Handle the recorder carefully.
  - Do not block the ventilation openings.
  - Do not place anything heavy on the recorder.
  - Do not place anything which might spill and cause trouble on the top cover of the recorder.
  - Use in horizontal (flat) position only.
- In case of transportion,
  - Avoid violent shocks to the recorder during packing and transportation.
  - Before packing, be sure to remove the cassette from the recorder.

Video cassettes

- This recorder employs VHS-type cassettes only.
  E-240 for 4 hours/8 hours, E-180 for 3 hours/6 hours, E-120 for 2 hours/4 hours, E-90 for 1 hour and 30 minutes/3 hours, E-60 for 1 hour/2 hours and E-30 for 30 minutes/1 hour of recording.
- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording cannot be performed. If you wish to record on a cassette whose tab has already been removed, use adhesive tape to block the hole.



- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, transformer or magnet) and dusty places.
- Place the cassettes in cassette cases and position vertically.

Moisture condensation

- If you pour a cold liquid into a glass, water vapour in the air will condense on the surface of the glass. This is called moisture condensation.
- Moisture condensation on the head drum, one of the most crucial parts of the video recorder, will cause damage to the tape.
- Moisture condensation is apt to occur under the following conditions:
  - when the recorder is moved from a cold place to a warm place, and
  - under extremely humid conditions.
- In conditions where moisture condensation may occur, keep the power cord plugged in an AC outlet and the OPERATE button set to ON; this would help prevent condensation from occurring. When condensation has occurred, it will not evaporate quickly once the power is switched on. Wait a few hours for the recorder to become dry.

Operation

- When a cassette is loaded, the power is switched on automatically.
- The cassette can be unloaded even when the power is off. Pressing the EJECT button turns the power on and, after ejection of the cassette, shuts it off automatically in this case.
- As long as the TIMER button is engaged with the TIMER indicator lit, the OPERATE and EJECT buttons have no effect and unloading of a cassette is not possible. If a cassette has not yet been inserted, simply insert a cassette; the power will be switched on to load the cassette properly and, after completion of automaitc loading, the Timer Recording Standby mode will be engaged with power off.

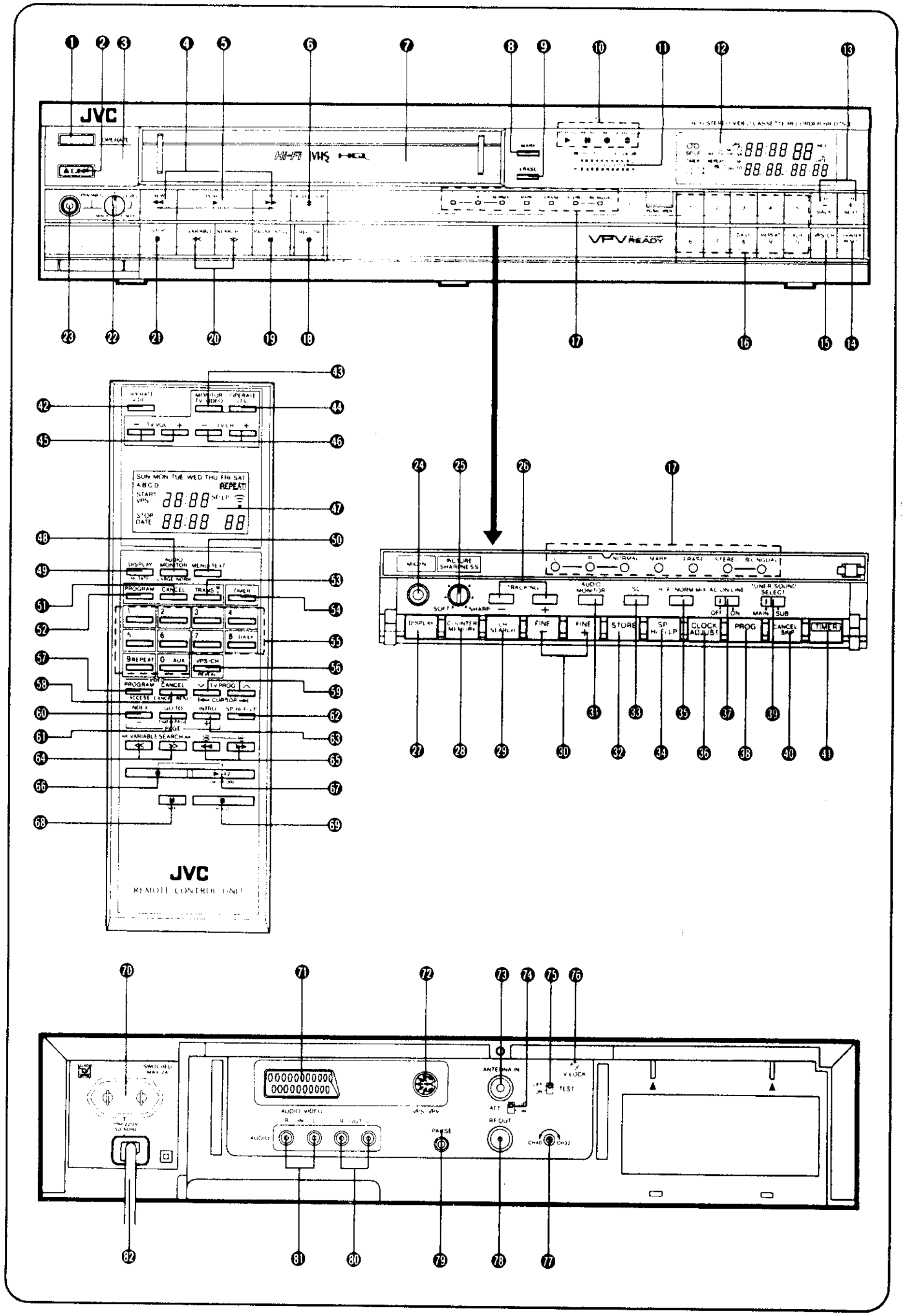
Remote control unit

- Avoid violent shocks, especially take care not to drop the unit.
- Take care not to allow liquid to spill into the unit.
- Do not place heavy objects on the unit.
- Avoid leaving the unit in places subject to direct sunlight or extremely high temperatures.

WARNING

1. This recorder can also receive SECAM colour television signals for recording and playback.
2. Recordings made of SECAM television signals produce monochrome pictures if played back on another video recorder of SECAM standard, or do not produce normal colour pictures if played back on another video recorder of PAL standard.
3. SECAM prerecorded cassettes or recordings made with a SECAM video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used in France. Use a SECAM recorder to record French SECAM signals in France.

IMPORTANT: It is permissible to record television programmes only in the event that third party copyrights and other rights are not violated.



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SAFETY PRECAUTIONS

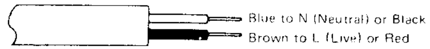
The rating plate and the safety caution are on the rear of the unit.

WARNING – DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT (In the United Kingdom)
Mains Supply (240 V∿, 50 Hz only)

IMPORTANT

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with following code:



If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red
If in doubt – consult a competent electrician.

FOR YOUR SAFERY (in Australia)
Install any external aerial to AS 1417. 1

Omkopplaren OPERATE på denna apparat är sekundärt kopplad och skiljer inte apparaten från nätet i läge OPERATE OFF.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

BEMAERK: I stilling OFF er apparatet stadig forbundet med lysnettet Hvis det ønskes fuldstændig afbrudt skal netledningen trækkes ud.

This unit is produced to comply with Directive 82/499/EEC, CISPR Pub. 13 and Pub. 14 and Standard IEC 65.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

CAUTION
- When you are not using the HR-D750E for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.

- Only cassettes marked "VHS" can be used with this video cassette recorder.
- HQ VHS is compatible with existing VHS equipment.

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FEATURES

High-quality pictures

- **HQ (High Quality) System technologies** with DE (Detail Enhancer) and WCL (20 % higher white clip level).
- Picture sharpness control.

High-quality sound

- **Conforms to the Hi-Fi VHS standard** for superlative stereo sound with a dynamic range of **more than 90 dB.**
- **Hi-Fi audio Long Play mode** for up to 8 hours of continuous Hi-Fi stereo sound recording and playback with a single cassette.
- Advanced switching noise reduction circuit.
- Peak-hold audio level indicators.
- **Audio dubbing facility.**
- Headphone jack with output level control.

Special-effects playback

- **Double-Azimuth 3-head** (DA-3) system for noiseless stills and frame advance.
- **Variable-speed slow motion** at 1/6, 1/12, 1/18, 1/24 and 1/30 normal speed.
- **Variable-speed search** at 3, 5, and 9 times normal speed in both directions.
- **Double-speed forward playback** and normal-speed reverse playback.

Tuner features

- **Frequency synthesized wide-band cable tuner** with 48-channel storage capacity.
- **Pretuned to European television broadcast frequencies:** VHF, UHF and cable channels.
- **Sound-Multiplex capability** for recording stereo and bilingual broadcasts. (Designed for use with West Germany's Sound-Multiplex TV system only.)
- **10-Key random-access channel selection** and up/down scanning.

Timer features

- **Compatible with VPS (Video Programme System)** through use of an optionally available VPS adapter, and capable of **Teletext Programming** through use of an optional VPV adapter.
- **1-Year/8-event 10-key programmable timer.**
- **Remote programming by data transfer.**
- **Direct VCR timer programming.**
- Instant timer recording.

Remote control features

- **Independent timer programming with built-in LCD and 4 programme memories.**
- **10-Digit keypad for timer programming**, channel selection, Index Search and Go-To functions.
- **TV control** for power on/off, volume, channel and AV mode selection (Designated JVC TVs only).

Tape access features

- **VHS Index Search System** which automatically places index codes at the beginning of any recording, with mark/erase facilities for manual marking of extra index codes during recording and playback, and manual erasing of unnecessary index codes during playback.
- **Automatic location** of up to 9 coded programmes by remote-specifying the number of index codes to be skipped. A specified code can be detected in the Shuttle Search, or the faster REW and FF modes for automatic playback.
- **Intro search** to play back the beginning of each indexed programme for about **5 seconds in fast-motion.**
- **Realtime go-to function** for locating a point on tape a specified time away from **the beginning.**
- **Realtime search function** for locating a point on tape a specified time away from the **current position** in either direction.
- **Half-loading mechanism for quick tape access:** Index and Intro Search, and Realtime **Go-to and Search** can all be carried out in the REW and FF modes **at up to 60 times** normal speed as well as in the Shuttle Search mode.
- Counter memory function for **returning to a designated** point on tape.
- Shuttle Search with lock function **at 9 times normal speed.**

Other value features

- **Realtime tape counter** showing tape time in hours, minutes and seconds by counting the recorded 25-Hz control signal pulses.
- **Automatic backspace editing by Zero Frame Editing system** for clean assemble edits.
- **Automatic functions** including Auto Play, **Next-Function** Memory, and more.
- **On-screen record-pause mode display** which signals elapsed pause time.
- Electronic tracking controls.
- Comprehensive fluorescent display.
- Switchable AC outlet.

(58) VIDEO CANCEL button
Press to cancel the programmed data held in the recorder's timer memory.

(59) TV PROG./CURSOR (∨ / ∧) buttons
Press either button to scan to a desired channel. These buttons can also be used as cursor keys when timer programming with numeric keys.

(60) INDEX button
Press to engage the Index Search mode. (See page 19.)

(61) GO-TO button
Press to engage the Realtime Go-To or Realtime Search mode. (See page 20.)

(62) SP/Hi-Fi LP button

(63) INTRO button
Press to engage the Intro Search mode. (See page 21.)

(64) VARIABLE SEARCH buttons

(65) Rewind/Fast-forward (Shuttle Search) buttons (◀◀ / ▶▶)

(66) Record button (●)
Press this button together with the ▶/X2 button to start recording.

(67) Play/X2 button (▶/X2)

(68) Pause/Still button (▮▮)

(69) Stop button (■)

Note:
Several buttons on the remote control unit will have additional functions (as suggested by additional labels) when the optional VU-V120E VPV adapter or VU-V100E VPS/VPV adapter is connected. For those functions refer to the instruction manual of the VPV adapter.

Remote Control Unit

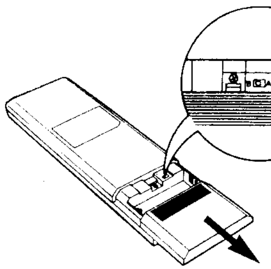
A/B mode switching
A switch on the back of the remote control labelled A/B is accessible when the battery compartment cover is removed.
- This switch is preset to the "A" position. Do not touch it unless you use two JVC video decks side by side.
- When you place two JVC video decks near each other, use this remote control in the "B" mode to prevent both decks from responding simultaneously to this remote control's signals. For this purpose, carefully follow the instructions below:

(1) Unplug the power cord of the HR-D750E from the AC outlet.
(2) Set the remote control unit's A/B mode switch to "B".
(3) Plug the power cord of the HR-D750E into the AC outlet.
(4) Turn on the power of the HR-D750E using the remote control's OPERATE VIDEO button.
- The HR-D750E "memorises" this B code and then will respond only to the signals of this remote control unit. The deck will respond only to its remote control.

Note:
Do not operate other remote controls after you have plugged the HR-D750E into the AC outlet and before you press the OPERATE VIDEO button of this remote control.

Operating distance for remote control unit
- The maximum operating distance is about 8 m.

Installing the batteries
- Insert two "R6"-size batteries (provided) into the battery compartment on the rear of the remote control unit, observing correct polarity.



Rear Panel

(70) AC outlet (SWITCHED)
Connect the power cord of other audio or video equipment (such as an FM tuner) requiring less than 2 amperes of power.
This outlet is controlled by the AC ONLINE switch ㊲
When the AC ONLINE switch is set to OFF, this outlet supplies (220∿, 50/60 Hz) regardless of the OPERATE button setting as long as the power cord of the HR-D750E is plugged in.
When the AC ONLINE switch is set to ON this outlet supplies power only when the recorder is on.

(71) AUDIO/VIDEO socket
A 21-pin standardised audio/video input/output socket for the connection to a TV or a 2nd video recorder equipped with the same type of socket. The input from this socket can be recorded in the AUX mode engaged by obtaining "AU" in the channel display.

(72) VPS/VPV connector
Connect the optional VU-V110E VPS adapter; Connect the optional VU-V120E VPV adapter or VU-V100E VPS/VPV adapter for decoding teletext programmes and for teletext timer programming (See page 23.)

(73) ANTENNA IN connector
Connect an aerial to this connector.

(74) Attenuator switch (ATT.)
Set to OFF to receive broadcasts from distant stations.
Set to ON to receive broadcasts of high field strength.

(75) TEST signal switch
Set to ON when tuning your TV receiver for the video channel. A test signal in the form of two vertical white bars will be available.

(76) V. LOCK adjustment screw
When operating in the Still mode, adjust this screw to eliminate any vertical vibration of the picture, by using a screwdriver.

(77) RF converter frequency adjustment screw (CH40 – CH32)
(See page 8.)

(78) RF OUT connector
Connect to the aerial terminal of a TV receiver through the aerial cable (provided).

(79) PAUSE terminal
When using a JVC video camera, connect the remote control cable of the camera adapter to this terminal for the purpose of controlling the starting and stopping of the tape with the camera's start/stop switch. When used with a JVC VideoMovie equipped with the Master Edit Control system, this terminal makes quality editing simple.

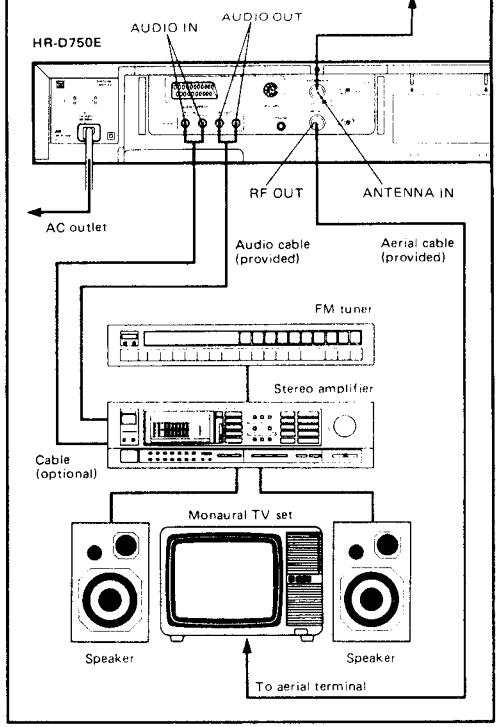
(80) AUDIO OUT connectors
Both hi-fi and normal audio signals can be obtained from these connectors. The output can be selected with the AUDIO MONITOR button ㉛ and Hi-Fi/NORM/MIX button ㉟ .

(81) AUDIO IN connectors
Connect an audio tape recorder or other audio sources for recording sound.

(82) Power cord.

CONNECTIONS

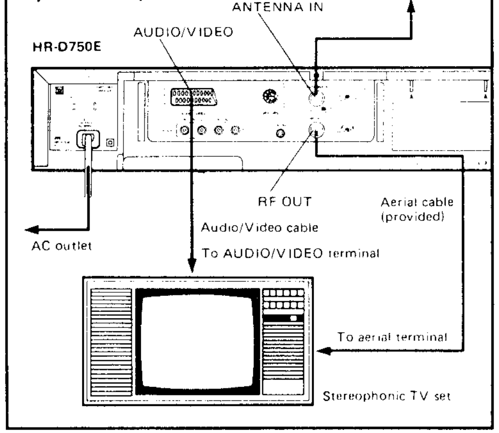
System Example 1



Procedure
1. Remove the aerial cable from the TV receiver and reconnect to the HR-D750E.
2. Connect the HR-D750E to the TV receiver using the aerial cable (provided).
3. Connect the AUDIO IN L and R (81) connectors of the HR-D750E to the recording output terminals of the amplifier. (Exactly as one hooks up an audio cassette deck.)
4. Connect the AUDIO OUT L and R (80) connectors of the HR-D750E to the AUX IN or TAPE MONITOR terminals of the amplifier.

Notes:
- Observe L and R when connecting the audio input and output connectors of the HR-D750E to a stereo amplifier.
- If stereo or bilingual TV broadcasts are receivable in your area, this recorder can record them independently of the TV set and play them back through the connected audio system.
- When listening to sound from the connected stereo system, turn down completely the sound volume of the TV receiver.
- Listening to stereophonic sound is also possible using stereo headphones connected to the front panel PHONES jack ㉓ .
- With this setup, you can enjoy prerecorded Hi-Fi VHS video tapes in hi-fi stereo while viewing them on a regular TV receiver, and also you can record FM simulcast television programmes with hi-fi audio accompaniment. **See page 16.**
- If you want to timer-control the recording of FM simulcast programmes, connect the tuner's power cord to the HR-D750E's AC outlet. Set the AC ONLINE switch ㊲ to ON, and both the tuner and the HR-D750E will be switched on at a time preprogrammed by the HR-D750E. Timer-controlled recording of FM simulcast programmes is not possible with the type of tuners which reset the channel each time the power is switched off.

System Example 2



For customers who own a stereo TV equipped with a standardised audio/video socket

By connecting the 21-pin AUDIO/VIDEO socket (71) of the HR-D750E to your TV's audio/video socket, it is possible to play stereo tapes through the TV's speakers. In this case, use the A/V mode specified on your TV, instead of UHF channel 36.

CAUTION
- The HR-D750E has a dynamic range of more than 90 dB with regards to its hi-fi audio capability. It is recommended that you check the maximum level if you are going to listen to the hi-fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set, otherwise the video playback picture will not be normal because of mutual interference.

CONTROLS, INDICATORS AND CONNECTORS

Refer to the diagrams on the front foldout page.

Front Panel

① **OPERATE button with green indicator**
Press to apply operating power to the recorder. The indicator will light. Loading a cassette also turns the power on.

② **Cassette EJECT button**

③ **Infrared beam receiving window**

④ **REW and FF (SHUTTLE SEARCH) buttons**
Press while in the Stop mode to rewind or fast-forward the tape; press while in the Play mode to view the speeded-up picture for programme search. (See pages 13 and 19.)

⑤ **PLAY/X2 button**
Press once to play back the tape; press again for double-speed playback. Also press this button to cancel the Pause/Still, Slow and Search modes.

⑥ **AUDIO DUB button**
Press while in the Still mode, then the PLAY/X2 button for audio dubbing.

⑦ **Cassette loading slot**
Insert a VHS cassette. The door will close and the "cassette loaded" indicator will appear on the FDP (fluorescent display panel).

⑧ **MARK button**
Press during playback or recording to put an index code onto the tape. (See page 19.)

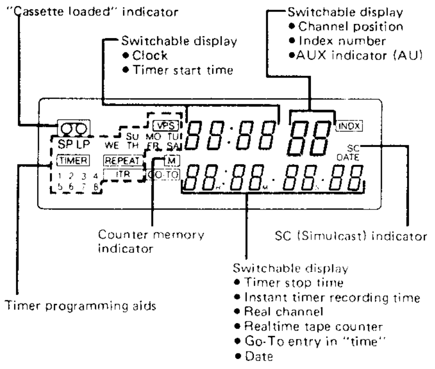
⑨ **ERASE button**
Press during playback to erase an index code. (See page 19.)

⑩ **Mode indicators**

PLAY/X2:	Lights in the Play or Double-Speed Play mode. Also lights in the Record mode together with the REC indicator.
PAUSE:	Lights in the Still or Record-Pause mode.
REC:	Lights in the Record mode together with the PLAY/X2 indicator.
AUDIO DUB:	Lights in the Audio Dubbing mode.

⑪ **Audio Level indicators**
Show the level of audio signal being recorded or played back.

⑫ **Fluorescent display panel**
Fully explained in relevant sections.



⑬ **CH (-/+) BACK/NEXT buttons**
Press either button to scan to a desired channel. These buttons can also be used as cursor keys for 10-key programming.

⑭ **COUNTER RESET button**
Press to reset the tape counter reading to "0H 00M 00S".

⑮ **VPS/CH button**
Allows for VPS programming when pressed in the Timer Set mode. In all other modes, this button functions to engage the tuner in the Real-channel mode. (See pages 9, 10 and 22.)

⑯ **Multi-purpose numeric keys**

Channel selection:	See page 9.
Clock setting:	See page 8.
Timer programming:	See pages 17 and 22.
Counter Go-To:	See page 20.
Index Search:	See page 19.
External source recording:	See page 24.

⑰ **LED indicators**

L & R:	Light when Hi-Fi stereo audio is selected with the AUDIO MONITOR button ㉛.
NORMAL:	Lights when normal audio is selected with the Hi-Fi/NORM/MIX button ㉟.
L:	Lights when Left Hi-Fi audio soundtrack is selected with the AUDIO MONITOR button ㉛.
R:	Lights when Right Hi-Fi audio soundtrack is selected with the AUDIO MONITOR button ㉛.
MARK:	Lights when an index code is being recorded by pressing the MARK button ⑧.
ERASE:	Lights when an index code is being erased by pressing the ERASE button ⑨.
STEREO:	Lights when a stereo programme is being received.
BILINGUAL:	Lights when a bilingual programme is being received.

⑱ **REC/ITR button**
Press once for normal recording; press again for Instant Timer Recording; each subsequent pressing adds 30 minutes to the recording time, up to a maximum of 4 hours. (See page 15.)

⑲ **PAUSE/STILL button**
Press to stop the tape temporarily to avoid recording of unwanted material or to view a still picture. The still picture can be advanced step by step.

⑳ **VARIABLE SEARCH buttons**
To control the search speed, both slow-motion and fast-motion search are available. The slow-motion speed can be changed in 5 steps: 1/6, 1/12, 1/18, 1/24 and 1/30 normal speed. For fast-motion search, available speeds are x3, x5, and x9 in both directions and x2 in the forward direction. Normal speed in the reverse direction is also possible. No audio is available in the Variable Search mode. To cancel the Variable Search mode, press the PLAY/X2 button. (See page 14.)

㉑ **STOP button**
Press to stop the tape.

㉒ **Phones LEVEL control**
Adjusts the level of audio output from the headphone jack.

㉓ **Headphone jack (PHONES)**

㉔ **MIC IN jack**

㉕ **PICTURE SHARPNESS control**
Turn this knob clockwise to make the picture sharper. Turn counterclockwise to give the picture a softer tone. Effective only for playback pictures. (No effect on recording.)

㉖ **TRACKING (-, +) controls**
If noise bars are seen during playback (normal or slow), use these buttons to reduce them. The tracking is reset to standard when both buttons are pressed together, the cassette ejected, or the power turned off.

㉗ **DISPLAY button**
Press to change the recorder's FDP from the Timer Programming mode to the Clock mode.

㉘ **COUNTER MEMORY button**
When this button is pressed to ON; M will appear on the FDP and the tape will stop automatically at the counter reading of about "0H 00M 00S" in the Rewind or Fast Forward mode.

㉙ **CH SEARCH button**
Press to initiate automatic scan tuning in the Real-channel mode. (See pages 9 and 10.)

㉚ **FINE (-, +) buttons**
To fine-tune in to a certain station by shifting the frequency in either direction. (See page 10.)

㉛ **AUDIO MONITOR button**
Press to select the audio output. Each time the button is pressed, the soundtrack to be output changes: left and right (stereo), left or right. These are indicated by the L and R indicators ⑰. (See page 12.)

㉜ **STORE button**
Press to store necessary channels. (See page 10.)

㉝ **SC button (Simulcast)**
When recording FM simulcast TV programmes, press this button (anytime, except when in the AUX mode) to set to the simulcast mode. "SC" will light on the FDP, and the video from the built-in tuner and the hi-fi audio signal from the rear panel AUDIO IN connectors will be recorded. (See page 16.)

㉞ **SP/Hi-Fi LP button**
Normally set this button to the SP (Standard Play) mode ("SP" lights on the FDP) when recording. In the SP mode, both pictures and sound are recorded, allowing up to 4 hours of continuous recording with a single cassette (E-240).
When using the HR-D750E as an audio deck, you can use the LP (Long Play) mode by pressing this button to obtain the LP indication on the FDP. In this mode, Hi-Fi audio recording is possible for up to 8 hours with a single cassette (E-240).

㉟ **Hi-Fi/NORM/MIX button**
Press to select for listening among either hi-fi or normal soundtracks or a mixture of the two.

㊱ **CLOCK ADJUST button**
Press to adjust the clock.

㊲ **AC ONLINE switch**

OFF position:	Power is available from the rear panel AC outlet regardless of whether the recorder is on or off.
ON position:	Power is available from the rear panel AC outlet only when the recorder is on. When used in combination with the built-in timer, this enables timer-controlled power supply for the connected equipment.

㊳ **PROG button**
Press to programme the timer.

㊴ **TUNER SOUND SELECT switch**
MAIN: To record the main soundtrack (local language).
SUB: To record the sub soundtrack (foreign language).
(See pages 11 and 16.)

㊵ **CANCEL/SKIP button**
A dual-purpose button. Use to clear the programmed data in the Timer Programming mode or skip unnecessary channels in the Channel Set mode. (See pages 10 and 18.)

㊶ **TIMER button**
Press to engage the Timer Recording Standby mode.

Infrared remote control unit

The infrared remote control unit gives you full operation control from your viewing position.
Note: The numeric keys on the remote control do not function for clock setting.

㊷ **OPERATE (VIDEO) button**
Press to turn the recorder power on or off.

TV OPERATION buttons (Designated TV models only.)

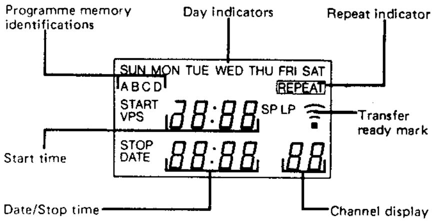
㊸ **MONITOR TV/VIDEO button**
Press to select the TV's operating mode: TV for viewing broadcast programmes or tape programmes via RF OUT connection, and VIDEO for viewing programmes via AV connection.

㊹ **OPERATE (TV) button**
Press to turn the TV power on or off.

㊺ **TV VOL. -/+ buttons**
Press either button to adjust the TV's sound volume.

㊻ **TV CH -/+ buttons**
Press to select a desired channel of the TV receiver.

㊼ **LCD (Liquid Crystal Display) panel**
Refer to this panel when programming the remote control's built-in timer memory.



㊽ **AUDIO MONITOR button**
Press to select the audio output. (See page 12.)

㊾ **DISPLAY button**
Press to change the recorder's FDP display from the Timer Programming mode to the Clock mode.

㊿ **MENU/TEXT button**
Refer to page 23.

(51) **CANCEL button**
Press to cancel the programmed data in the remote control's timer memory.

(52) **PROGRAM button**
Press to programme the remote control's timer memory.

(53) **TRANS button**
Press to transfer the data held in the remote control's timer memory to the recorder.

(54) **TIMER button**
Press to engage the Timer Standby mode.

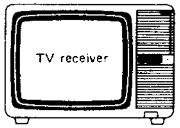
(55) **Multi-purpose numeric keys**

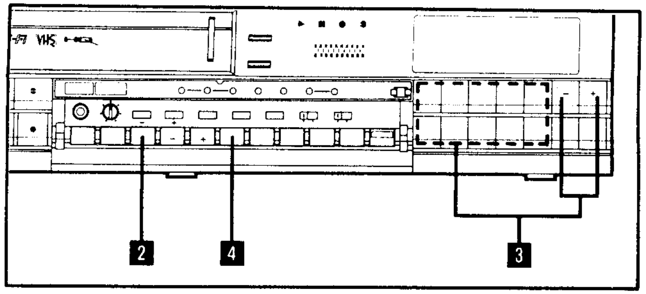
(56) **VPS/CH button**

(57) **VIDEO PROGRAM button**
Press to call up the recorder's timer memory.

Storing channels

Turn the TV receiver to ON and adjust it to your video channel.

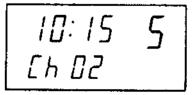




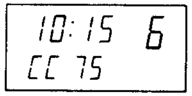
A. Automatic setting

1 Turn the power on.
- The display will change from the Date mode to the Counter mode.

2 Press the CH SEARCH button ㉙ .
- The display will change to the Real Channel mode and automatic scanning will take place for "Ch" channels, then for "CC" channels.
- Reverse search will be engaged if the CH SEARCH button is kept depressed.

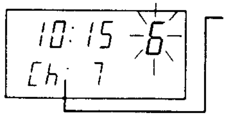


VHF channel 2 is stored for channel position 5.



Cable channel 75 is stored for channel position 6.

- When a broadcast is detected, scanning stops automatically and the displayed channel position number will blink.



"Colon" will appear to indicate that this real channel is not stored for the indicated channel position.

3 Select a channel position into which you wish to store that station by using the numeric keys ⑯ or the CH (–/+). buttons ⑬ while the channel position number is blinking.

4 After confirming the real channel number and channel position number, press the STORE button ㉜ until the channel position number stops blinking.
- "Colon" will disappear and the selected station has been stored.

B. Manual Setting from remote control unit

(1) Press the VPS/CH button.
- The display will change to the Real channel mode.

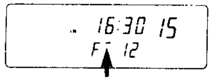
(2) Press the VPS/CH button until the real channel number starts blinking.
- Pressing the VPS/CH button will alternate the real channel mode between Ch and CC.
- Blinking will stop in 10 seconds.

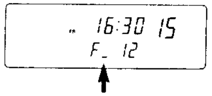
(3) Enter the number of a real channel to be preset.
- The channel position number will start blinking.

(4) Select a channel position into which the selected real channel is to be stored, using the 10-digit keypad.
- Always key in a two-digit number ("05" for channel position 5 for example) and depress the numeric key for the second digit continuously until blinking stops. This enables the entered number to be stored.
- The display will return to the clock mode by simply keying in the channel number to be viewed.

• Fine Tuning

For fine tuning, use the FINE "+" or "-" button in step 3 (both in automatic and manual setting) "+" to fine-tune in the direction of increasing frequencies, and "-" to fine-tune in the direction of decreasing frequencies.





Skipping the stored channels

1. Call up the channel position number that you wish to skip by using the CH (-/+) buttons or 10 numeric keys.
2. Press the VPS/CH button.
3. Press the CANCEL/SKIP button ㊵ .
   - "Colon" will appear to indicate that the displayed real channel is not stored.
   - The skipped channel position number will not appear on the channel display during up/down scan tuning.

Note:

If no command is given after each step of the setting operation, the Real Channel mode will be automatically cancelled in 10 seconds.

INFORMATION ON THE HR-D750E'S AUDIO SYSTEM

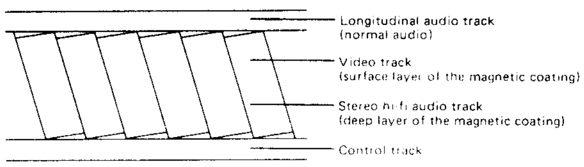
Hi-Fi and normal audio

To provide true hi-fi audio accompaniment to video entertainment and, at the same time, compatibility with regular VHS tapes, the HR-D750E employs a unique audio recording system. Hi-fi audio signals (2-channel) are recorded deep into the tape's magnetic coating, and the video signal is recorded on top of the audio signals in a shallower layer. At the same time, another audio head records normal audio signals (monaural) onto the usual longitudinal audio track. Since this longitudinal audio track is exactly the same as on regular VHS tapes, tapes recorded on the HR-D750E can be played back on other VHS machines, and vice versa. Also, this longitudinal track can be replaced later with new recordings through audio dubbing.

CAUTION:

The hi-fi soundtrack recorded with the HR-D750E cannot be reproduced with video equipment other than Hi-Fi VHS.

Tape pattern recorded with the HR-D750E


Longitudinal audio track (normal audio)
Video track (surface layer of the magnetic coating)
Stereo hi-fi audio track (deep layer of the magnetic coating)
Control track

Hi-fi audio recording and reproduction are availabe only from the hi-fi audio track while the longitudinal audio track provides normal audio.

The hi-fi and normal soundtracks are recorded simultaneously, and audio dubbing is applicable only to the normal audio.

Recording options according to the selected input mode

Track / Input mode	Video track	Normal audio track (mono)	Hi-fi audio track (2-channel)
TUNER SC ☐ (button pressed to OFF)	TV picture (from built-in tuner)	TV sound (from built-in tuner)	**TV sound (from built-in tuner) (Mixing with microphone input is possible)**
SC SC ☐ (button pressed to ON)	TV picture (from built-in tuner)	TV sound (from built-in tuner)	Audio signal from AUDIO IN (Mixing with microphone input is possible.)
AUX AU Channel display section	Video signal from AUDIO/VIDEO	Audio signal from AUDIO/VIDEO (Mixing with microphone input is possible.)	

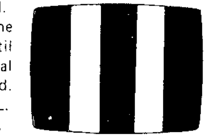
Notes:
- To engage the AUX mode, press the "0" key of the 10-digit keypad.
- Microphone input will always be mixed with the audio signals on the hi-fi audio track. Therefore, do not leave a microphone connected to the MIC IN jack unless needed.
- You can record audio only (without recording any video signal) in either the SP or Hi-Fi LP mode. In the Hi-Fi LP mode you can enjoy up to 8 hours of hi-fi stereo recording with a single cassette (E-240).

Recording options according to the type of broadcasts and the setting of the TUNER SOUND SELECT switch

Type of broadcast	Audio Track / TUNER SOUND SELECT switch position	Normal audio track (mono)	Hi-fi audio track (2-channel)	
			L	R
Regular (monaural audio)	Either position	Mono	Mono	Mono
Stereo broadcast	Either position	L + R mixed	Stereo	
Bilingual broadcast	MAIN	Main soundtrack (local language)	Main soundtrack (local language)	Sub soundtrack (foreign language)
	SUB	Sub soundtrack (foreign language)		

VIDEO CHANNEL SETTING

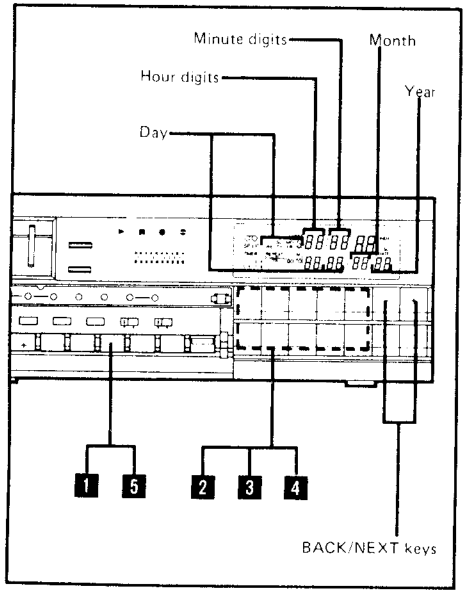
1. Press the OPERATE button ❶ to turn the power on. Turn on the TV receiver.
2. Set the TEST switch (75) to ON.
3. Adjust your TV receiver in the vicinity of UHF channel 36 until you bring in the two white signal bars on the screen as illustrated. This is your VIDEO CHANNEL.
4. Reset the TEST switch to OFF.



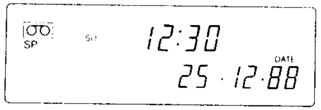
Notes:
- If some interference noise is seen on the screen because of broadcasts on neighbouring channels or if your preset broadcasts should be affected in picture quality, it is necessary to shift the RF converter output frequency from that of channel 36. Consult your JVC dealer for making this adjustment.
- Video channel setting is also possible using a prerecorded VHS video cassette. Play back the tape and tune the TV receiver to obtain clear pictures and sound while monitoring the playback picture on the TV screen.
- If your TV receiver is not provided with an AFC circuit, perform fine tuning of the TV receiver when you are actually viewing video cassettes.

CLOCK SETTING

Plug the HR-D750E into an AC outlet. The display shows a blinking 0:00.



1. Press CLOCK ADJUST ㊱.
   The display will change to the Clock Set mode with the hour indication blinking.
2. Set the hour and minute in that order.
   - The blinking position is ready for entry.
   - To set a one-digit number, first press "0", then press the numeric key for 1 to 9.
   - Zero will not be displayed in the tens place of the hour indication unless the cursor is moved back to the hour digits.
   - For a two-digit number, simply press the corresponding numeric keys in the right order.
   - In hour setting, numbers larger than 23 will be rejected.
   - In minute setting, numbers larger than 59 will be rejected.
3. Set the day and month in that order.
   - The setting method is the same as for time setting.
   - In day setting, invalid numbers such as 32 of January or 30 of February will be rejected.
   - 29 or February will be accepted only during leap years.
   - In month setting, numbers larger than 12 will be rejected.
4. Set the year.
   - Key in only the last two digits of the year.
5. Press CLOCK ADJUST.
   - Press it at the exact instant of the time signal, and the clock will be set accurately to the present time.

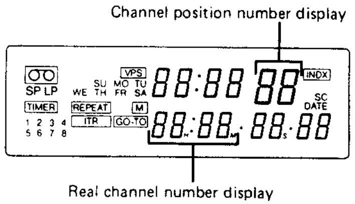


Notes:
- If you press a wrong numeric key, you can return to the previous position using the BACK "–" key.
- Once all necessary data have been entered, you can reach any position for correction using the BACK/NEXT "–" and "+" keys.
- Clock setting is not possible if the TIMER button ㊶ is engaged with the TIMER indicator lit. First check to see that the TIMER indicator is off.

Power failure indicator
The blinking 0:00 (initial condition of the display) is also a power failure indicator, showing that there has been a power failure exceeding about 3 to 5 minutes. Re-adjusting the time restores the normal condition of the clock display.

OPERATING THE BUILT-IN TUNER

The HR-D750E incorporates an advanced frequency synthesized tuner which is pretuned to 112 channels to cover VHF, UHF and CATV broadcasts. Channel indication is given in two different ways: real channel numbers and channel position numbers. Real channel number indication is available by pressing the VPS/CH button ⑮ or during search by pressing the CH SEARCH button ㉙, while channel position number indication is always available in the channel display.



Correspondence between 112 pretuned TV stations and the HR-D750E's real channel indications

DISPLAY	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Ch	–	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	A	B	C	D	E	F	G	H
CC	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	E14	E15	S16	S17	S18	S19	S20
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10
	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
DISPLAY	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
Ch	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30	E31	E32	E33	E34	E35	E36	E37	E38	E39	E40
CC	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30	S31	S32	S33	S34	E35	E36	E37	E38	E39	E40
DISPLAY	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
Ch	E41	E42	E43	E44	E45	E46	E47	E48	E49	E50	E51	E52	E53	E54	E55	E56	E57	E58	E59	E60
CC	S41	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
DISPLAY	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**			**75**	**76**	**77**						
Ch	E61	E62	E63	E64	E65	E66	E67	E68	E69			–	–	–						
CC	–	–	–	–	–	–	–	–	–			X	Y	Z						

Stored channels
A total of 112 channels are receivable. Of them, up to 48 can be stored for easy channel selection. Prior to shipment, some channels are stored.

It is possible to store more channels or skip some channels if there are no broadcasts on those channels in your area. It is possible to change the stored channels to correspond to your preferred channel allocation. Skipped channels can be restored whenever necessary.

- Channel memories are permanent; the programmed channel allocation will not be erased even if the recorder is unplugged from the AC outlet.

Channel selection
To select a channel for recording, normally use the CH (–/+). buttons ⑬ (TV PROG. (59) on the remote control) or 10 numeric keys ⑯ (55). You can choose any channel from among the stored ones by calling up the corresponding channel position number.

- Use the CH "–" button to scan to a channel in the direction of decreasing numbers; the CH "+" button, in the direction of increasing numbers.
- When using the 10 numeric keys, pay attention to the following: To set a one-digit number, first key in 0. To key in a two-digit number, enter numbers in sequence. The number entered first will be shifted to the tens place. An invalid number larger than 48 will be rejected.

If you want to select a channel other than those stored, engage the Real Channel mode and call up a channel, while referring to the real channel number display.
With recorder's controls:
- Press the VPS/CH button ⑮ to engage the Real Channel mode and call up a channel by using the 10 numeric keys. Or simply press the CH SEARCH button ㉙.

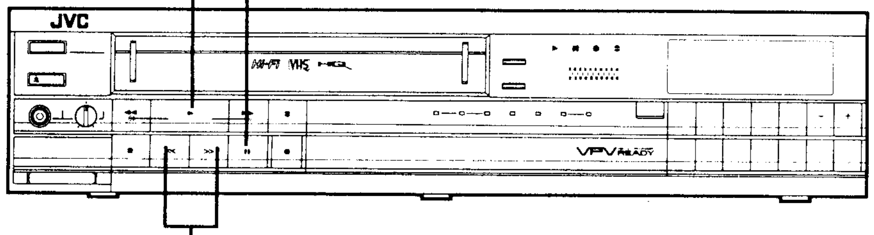
With remote control:
- Press the VPS/CH button (50) to engage the Real Channel mode and call up a channel by using the 10 numeric keys.
For details, refer to next page.

SPECIAL-EFFECTS PLAYBACK

DOUBLE-SPEED PLAYBACK
- ●Press PLAY/X2 ⑤ while in the Play mode; double-speed playback will be engaged.
- ●To resume normal playback, press the same button again.

STILL PICTURE
1. Press PAUSE/STILL ⑲ during playback.
2. To advance the still picture, press PAUSE/STILL a number of times.
3. To cancel the Still mode, press PLAY/X2.

Notes:
- ●When the Still mode continues for longer than about 5 minutes, the Stop mode will be entered automatically.
- ●With some televisions, the still picture may be unstable. This is not due to any defect of the unit. If vertical vibration of the picture is observed, attempt to correct it by turning the V.LOCK control (76) on the rear of the video recorder.

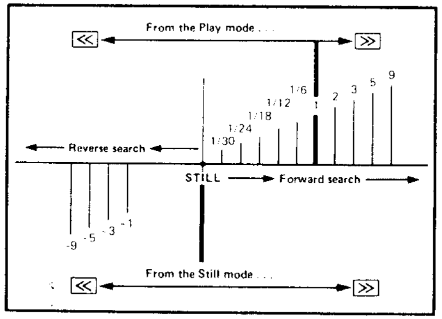


Notes:
- ●No audio is available during any Special-effects Playback mode.
- ●If noise bars are visible, use the TRACKING controls as described on the previous page.

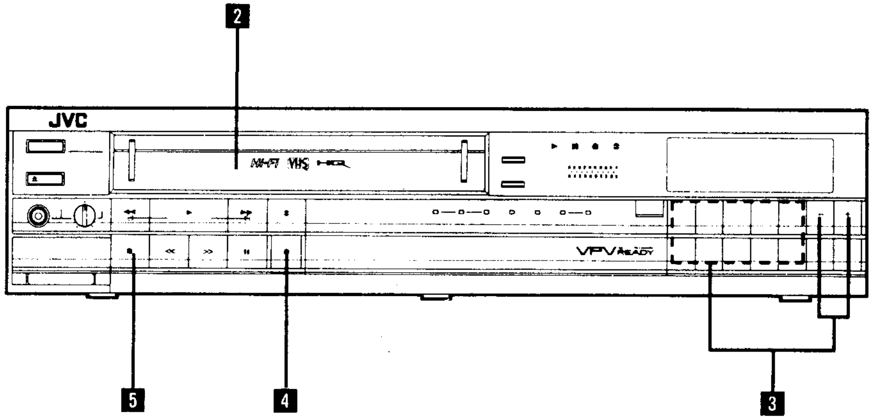
VARIABLE SEARCH ([≪] and [≫])

Variable speed search is possible in either forward or reverse direction from either the Still or Play mode.

- ●To search in the forward direction:
  - ●Press the [≫] button in the Play mode to start fast-motion searching from 2 times normal speed. To increase speed (to 3, 5, 9 times normal), press [≫] repeatedly.
  - ●Press the [≫] button in the Still mode to start slow-motion searching from 1/30 normal speed. To increase speed (to 1/24, 1/18, 1/12, 1/6, normal, X2, X3, X5, X9), press [≫] repeatedly. To decrease speed, press [≪] repeatedly. (Pressing the [≪] button in the Play mode, starts slow-motion searching at 1/6 normal speed.)
- ●To search in the reverse direction:
  - ●Press the [≪] button in the Still mode to start searching in the reverse direction at the same speed as normal speed playback. To increase speed (to -3, -5, -9 times normal), press [≪] repeatedly. To decrease speed, press [≫] repeatedly.
- ●To return to the normal Play mode, press the PLAY/X2 button.



BASIC OPERATION FOR RECORDING TV PROGRAMMES

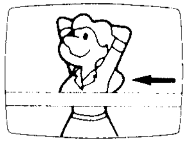


1 Turn the TV receiver on and adjust it to your video channel.

2 Load a cassette (with safety tab in place).
- ●Power will be switched on automatically.

3 Press either CH (–/+) ⑬ or the numeric keys ⑯ to select the channel you wish to record.

4 Press REC/ITR ⑱ to start recording.
- ●Be careful to press REC/ITR only once, or Instant Timer Recording will begin.
- ●Press ● (66) and ►/X2 (67) simultaneously when using the remote control unit.
- ●If there is part of the programme you don't want to record, press PAUSE/STILL ⑲ . A white horizontal bar will appear on the screen, which reduces in size in 4 steps as time elapses. When the last quarter starts blinking and disappears, the Stop mode will be entered automatically. The pause duration is possible for about 5 minutes.



Pause mode indicator

- ●To continue recording from the Pause mode, press PLAY/X2 ⑤ while the white bar is on-screen.

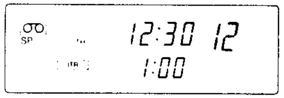
5 Press STOP ㉑ at the end of the programme.
- ●When the end of the tape is reached during recording, the tape is automatically rewound and stops.

Note:
- ●The selected channel cannot be altered during recording. If you wish to change the channel, first engage the Pause mode and then select a different channel.

INSTANT RECORDING

If you wish for recording to stop automatically after a certain period of time, use this Instant Timer Recording mode.

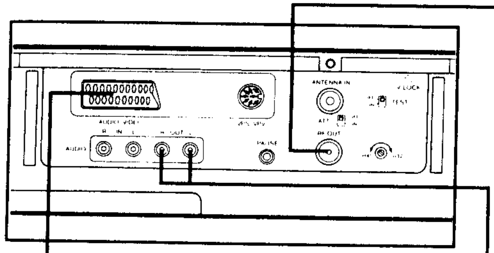
1. Press REC/ITR during recording (or twice if in the Stop mode).
   - ●Recording will begin and the FDP shows "[ITR]0:30", indicating that recording will automatically stop and power will switch off after 30 minutes.



2. Adjust the switch-off time, if necessary.
   - ●Press REC/ITR to increase the time in 30-minute increments (possible up to 4 hours).
   - ●Use the numeric keys to set to a more precise time when required (possible up to 8 hours 59 minutes). Always key in a full number including hours and minutes. For "0:35", key in zero first. After setting the time, press REC/ITR immediately.

Dual-audio playback flexibility

Two different types of audio tracks (hi-fi and normal) allow a variety of playback options depending on the connection and the settings of relevant controls and switches.



RF OUT connector
Delivers audio (both hi-fi and normal) and video signals to a TV receiver. When the recorder is not used, the aerial signal is supplied from this connector to the TV receiver to allow regular TV viewing; when a video tape is played back through the RF OUT connector, the audio is reproduced always as monaural; with hi-fi stereo tapes, both channels are mixed or the one selected by the AUDIO MONITOR button is reproduced. Therefore, for stereo playback, connect a stereo system to the AUDIO OUT connectors or a stereo television to the AUDIO/VIDEO socket. Refer to page 7.

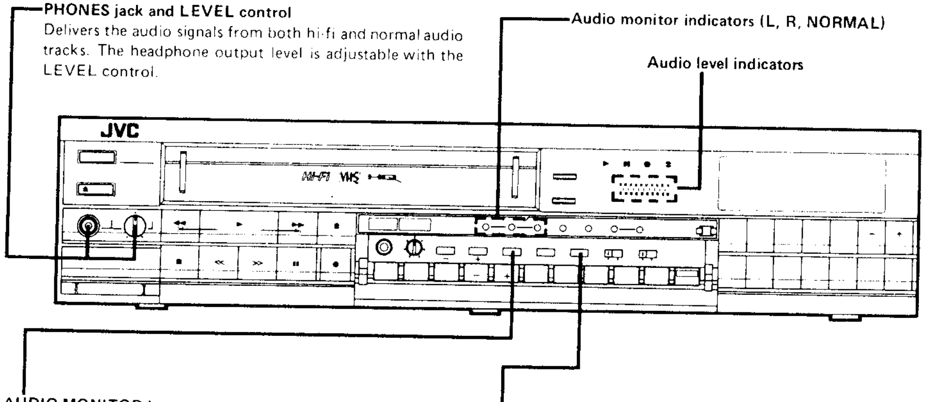
AUDIO/VIDEO socket
Delivers audio (both hi-fi and normal) and video signals. (Also accepts audio and video signals for recording from other video equipment.)

AUDIO OUT connectors
Delivers the audio signals from both hi-fi and normal audio tracks.

PHONES jack and LEVEL control
Delivers the audio signals from both hi-fi and normal audio tracks. The headphone output level is adjustable with the LEVEL control.

Audio monitor indicators (L, R, NORMAL)

Audio level indicators



AUDIO MONITOR button
Selects the hi-fi audio channel (left, right or both) for listening. Use this button together with the Hi-Fi/NORM/MIX button referring to the three LED indicators (L, R and NORMAL) ⓱.

- When the power is turned on, the L and R indicators light and both hi-fi stereo soundtracks can be listened to. Press this button and only the L indicator lights to listen to only the left hi-fi channel sound.
- Press this button again and only the R indicator lights to listen to only the right hi-fi channel sound.

Notes:

- This button functions during recording as well, although it has no effect on the recorded signal.
- With the Hi-Fi/NORM/MIX button pressed for the NORMAL setting, pressing the AUDIO MONITOR button has no effect.

Hi-Fi/NORM/MIX button
Operates in conjunction with the AUDIO MONITOR button to select sound tracks for listening.

- When the power is turned on, both hi-fi stereo soundtracks can be listened to. Press this button once to listen to only the normal soundtrack (the NORMAL indicator lights).
- Press this button again to listen to a mixture of hi-fi stereo (L and/or R), and normal soundtracks, by selecting the combination with the AUDIO MONITOR button.

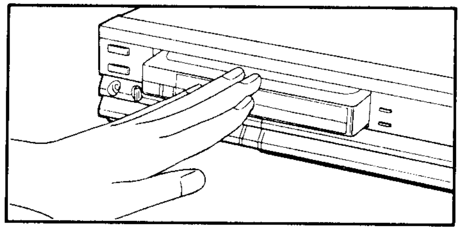
Notes:

- This button functions during recording as well, although it has no effect on the recorded signal.
- When playing back a tape containing the same soundtrack on both hi-fi and normal audio tracks, a slight time lag is sensed between the two soundtracks, probably with some distortion when listening in the Mix mode.

LOADING AND UNLOADING A CASSETTE

Loading

Insert a cassette as illustrated. Be sure to insert it firmly into the slot; otherwise, it will be automatically ejected



- The automatic loading mechanism will operate only when the cassette is inserted correctly.
- With a cassette inserted, the "cassette loaded" indicator will appear on the FDP.

Unloading

Press the EJECT button ❷.

CAUTION

- If unloading of the cassette is not possible, check to see whether the TIMER indicator is lit. If so, press the TIMER button so the TIMER indicator extinguishes.
- Do not attempt to pull out the cassette once automatic loading has started.
- Do not insert fingers or any foreign object beyond the door of the cassette loading slot, as this could lead to injury or damage to the mechanism. Show special caution with children.

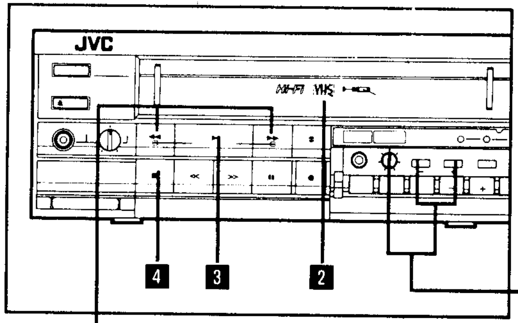
AUTO POWER-ON AND AUTO PLAY SYSTEM

- The cassette can be loaded even when the power has not been turned on. Inserting a cassette into the loading slot turns the power on automatically.
- Inserting a cassette, with its safety tab removed, turns the recorder on and playback of the cassette begins automatically.

POWER-OFF EJECT SYSTEM

- The cassette can be unloaded even after the power has been turned off. Pressing the EJECT button turns the power on automatically and, after ejection of the cassette, shuts it off automatically.

PLAYING BACK A VIDEO CASSETTE



1. Turn the TV receiver on and adjust it to your video channel.
2. Load a pre-recorded cassette.
   - Power will be switched on automatically.
   - When the cassette loaded has no safety tab, play back will start automatically.
3. Press PLAY/X2 ❺.
4. Press STOP ㉑ at the end of the programme.
   - The tape will be rewound automatically when its end is reached and the recorder will enter the Stop mode.

Note:
Only SP (Standard Play) recordings can be played back.

SHUTTLE SEARCH
Shuttle Search allows high-speed playback at 9 times normal speed in either direction.

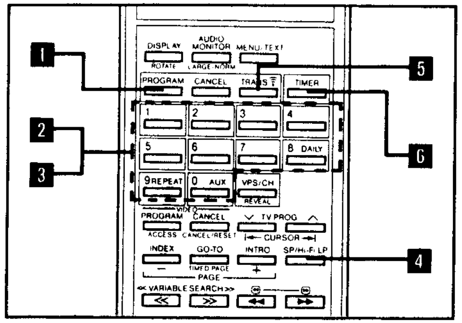
1. Press either REW or FF Shuttle Search ❹ during playback.
2. To cancel the Search mode, press PLAY/X2.
   - For briefer scanning, keep the SHUTTLE SEARCH button pressed for more than 2 seconds; when you release the button, the Search mode will be cancelled.

Picture Sharpness Adjustment
Images on the screen can be adjusted to a preferred softer or sharper definition by turning the PICTURE SHARPNESS control ㉕ in the corresponding direction.

Tracking Adjustment
Noise bars may appear on the screen if you play back a tape which was recorded using another recorder. For correction, press either TRACKING button ㉖. Tracking will be reset to the preset standard each time the cassette is ejected.

C. Independent Remote Programming

- The remote control incorporates 4 programme memories (A, B, C and D).
- The programmed data is held in memory even after it has been transferred to the recorder.

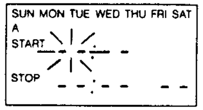


1 Press PROGRAM (52).

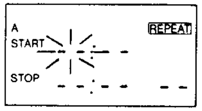
- The LCD will be activated for programme memory "A".
- To advance to programmes B to D, press again.

2 Enter the date using numeric keys (55).

- Setting for a daily or weekly serial is the same as described in "A. Local Programming".



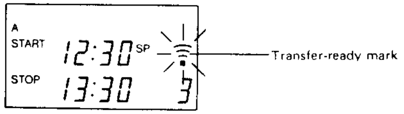
For daily serial setting



For weekly serial setting

3 When the display changes to the next stage, enter the start time, stop time and channel in succession.

- For programming the timer to record an external source, press the numeric key "0" while the channel is blinking; "0" will appear on the LCD and when transferred in step **5**. "AU" will appear in the channel display section on the FDP.
- After the channel has been entered, the transfer-ready mark will appear and blink.



- When not using the VPS recording system with the VPS adapter connected, press VPS to make "VPS" disappear.
- If the VPS adapter is not connected, the VPS information is not memorized in the recorder even though the VPS indicator is visible on the LCD. Therefore, it is not necessary to turn it off.

4 Press SP/Hi-Fi LP (62) to obtain the desired recording mode indication on the display.

- The SP or Hi-Fi LP entry can be made anytime while in the Timer Set mode.

5 Direct the remote control to the recorder's Remote Sensor window ❸ and press TRANS (53).

- The programmed data will be loaded in one of the recorder's memories (1 – 8), the vacant one of the smallest programme number.
- If all programme memories are full, the recorder's clock will blink and transmission will not take place.

6 Press TIMER (54).

- Check to see that the TIMER indicator and other items on the recorder's FDP respond correctly. (See page 17.)

Setting the date, start and stop times, and channel

- It is not possible to set the date, start and stop times unless the date and clock have previously been set.
- Enter the date while the digits are blinking.
- Unless the start time has been properly set, stop time setting is not possible.
- The stop time can be set within 24 hours from the start time.
- Non-applicable numbers (such as January 32, February 30 for dates, 24 or larger for hours, 60 or larger for minutes and 49 or larger for channels) will be rejected when keyed in.

Cancelling the preset data

- The preset programmes can be cancelled. First engage the Timer Set mode for the programme number you wish to cancel and then press the CANCEL/SKIP button ㊵ or VIDEO CANCEL ⑱ . Or for the remote control's memory, press CANCEL (51).
- Unless the VPS mode is engaged, an executed programme is automatically cleared.

Checking the programmed data

- Checking and re-programming can be performed anytime, even when the TIMER button has already been engaged.
- While recording is actually taking place according to one preset programme, all other preset programmes can be checked or re-programmed.
- To disengage the Timer Set mode, press the DISPLAY button ㉗ (on the recorder) or the DISPLAY button ㊾ (on the remote control).

Timer recording operation

- When the preset start time is reached, recording starts.
- After timer recording, the power is switched off. If the tape end is reached during timer recording, the cassette is automatically ejected and the power is switched off.

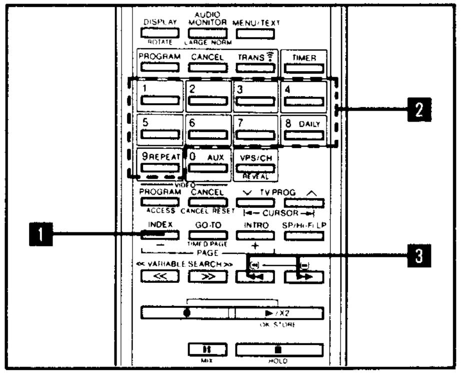
How to use the cursor keys ⑬ (59)

- If you press a wrong key and the flashing position has advanced, press BACK to return to the previous position for correction.
- Once all data have been programmed, you can reach any position for correction using BACK or NEXT. The flashing position is ready for re-entry.
- Pressing PROG on the recorder or VIDEO PROGRAM on the remote control engages the FDP in the check mode in which no position flashes and data correction is not possible. Pressing PROGRAM on the remote control engages the LCD in the transfer-ready mode in which the transfer-ready mark is flashing and data correction is not possible. For correction of data, press either cursor key to move to the position which requires correction.

INDEX SEARCH FUNCTION

The Index Search function gives you automatic access to locations on the tape where index codes are recorded. Index codes are recorded automatically at the beginning of recordings which are started from the Stop or Timer Standby mode, or recorded manually at any other position during recording or playback. Unnecessary codes can be erased manually during playback. In neither case is there any effect on the audio or video recordings on the tape. With the HR-D750E, you can access any one of up to 9 of these indexed segments in either the forward or reverse direction.

Using the Index Search function



1 Press INDEX (60) while in the play or Stop mode.

- The channel display of the FDP will change to the Index Search mode and the " INDX " indicator will light.

2 Specify the index number using one of the numeric keys (55) (1 – 9) within 10 seconds.

- The specified number will appear in the FDP.

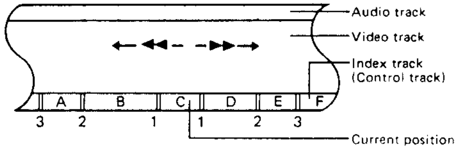
3 Press either ◀◀ or ▶▶ (65) .

- The tape will move and the index numbers count down to 0, where normal playback will start.
- If the INDEX button was pressed in the Play mode, the screen shows search pictures; if the button was pressed in the Stop mode, the index codes are detected in the much faster Rewind or Fast-Forward mode.

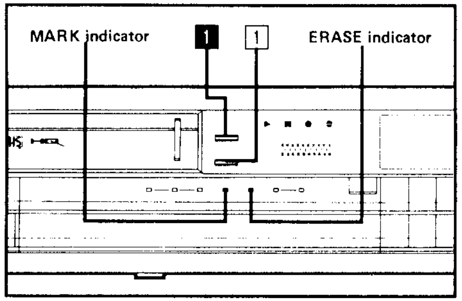
Notes:

- To cancel the Index Search mode before completion, press ▶ /X2 (67) or ■ (69) .
- If the end of the tape is reached while still in the Index Search mode, the mode is cancelled and the tape rewound.

Tips for specifying the index number



- "1" + ▶▶ moves playback to the beginning of segment D.
- "1" + ◀◀ moves playback to the beginning of segment C.
- "2" + ◀◀ moves playback to the beginning of segment B.
- If no number is entered, a value of "1" is assumed.



Marking extra index codes

1 Press MARK ❽ while in the Record or Play mode.

- An index code will be recorded on the tape.
- The MARK indicator ⑰ will blink while the index code is being recorded.
- If you wish to add an index codes from the Record-Pause mode, press MARK before pressing PLAY/X2 to resume recording.

Erasing index codes

1 Press ERASE ❾ while in the Play mode.

- First the Shuttle Search mode will be engaged and, when an index code is detected, it will be erased automatically. Then the Erase mode will be cancelled and playback resumes.
- The ERASE indicator ⑰ remains lit during the searching process and blinks while the code is being erased.

Notes:

- Index codes cannot be added or erased on a tape with its safety tab removed.
- While the index code is being searched for in the Erase mode, random noise appears on the screen.
- Audio is muted in both the Mark and the Erase modes.

OTHER RECORDING POSSIBILITIES

RECORDING A TV PROGRAMME WHILE WATCHING ANOTHER

A programme not being viewed can be recorded while you enjoy another programme. This permits the recorded programme to be played back later at your convenience.
The recording procedure is exactly the same as described on the previous page. The points to be remembered are:

- Select the channel you wish to record with the recorder's channel select buttons.
- Select the channel you wish to view with the TV receiver's channel selector.

RECORDING STEREO TV PROGRAMMES

(Applicable only to the West German Sound Multiplex TV system)
If stereo TV programmes are broadcast in your area, the HR-D750E automatically receives them in stereo. When a stereo programme is being received, the STEREO indicator lights and recording is made in stereo on the hi-fi audio track and in mono (mixed L + R) on the normal audio track. To listen to the stereo soundtrack during recording, set the AUDIO MONITOR button ㉛ for L and R. If this button is left set either in the L or R position, you will hear only one channel while recording, though the recording is being made in stereo.

RECORDING BILINGUAL TV PROGRAMMES

(Applicable only to the West German Sound-Multiplex TV system)
When a bilingual TV programme is being received, the BILINGUAL indicator lights. There is a switch to select the soundtrack to be recorded on the normal audio track, however, because both soundtracks are recorded always on the hi-fi track for selective listening, you can ignore the switch labelled TUNER SOUND SELECT in most cases unless you need a specific soundtrack on the normal audio track.

- Set TUNER SOUND SELECT switch ㊴ to MAIN to record the main soundtrack (local language); to SUB to record the sub soundtrack (foreign language).
- To listen to the selected soundtrack from the hi-fi audio track while recording, press the AUDIO MONITOR button for either L or R.
- To listen to the soundtrack being recorded on the normal audio track, press the Hi-Fi/NORM/MIX button ㉟ for NORMAL.

RECORDING FM SIMULCAST TV PROGRAMMES

FM simulcast TV programmes can be recorded using an FM stereo tuner. Connect necessary components. (Connect the FM tuner to the rear panel AUDIO IN connectors.) Select the TV channel broadcasting the simulcast programme with the recorder's channel select buttons and tune the FM stereo tuner to the station broadcasting the soundtrack for this TV programme.
The only difference from the basic recording procedure on page 15 is an additional step after step **3**.

- Press SC button ㉝.
  Then the SC indicator on the FDP will light. With this setting, the video and audio signals from the built-in tuner will be recorded on the video and normal audio track and the audio signal from the FM stereo tuner will be recorded on the hi-fi audio track.

Notes:

- After finishing recording, be sure to press the SC button to switch back to the Tuner mode.
- While recording simulcast programmes, it might happen that the hi-fi sound distorts momentarily at switching points between different programmes. This is not due to any defect of the unit.

RECORDING A TV PROGRAMME WHILE RECORDING AN INDEPENDENT AUDIO SOURCE

Using the "simulcast" recording function, you can record independent audio and video programmes, because the TV soundtrack is not lost, but recorded on the normal audio track. While recording a TV programme, record any audio source independently.

- Connect an audio component (such as an FM tuner) to the AUDIO IN connectors (81).
- Press SC button. The SC indicator on the FDP will light.

Notes:

- If you stop recording to avoid unwanted material of the TV programme using the PAUSE/STILL button, the audio programme from an external source is also cut.
- If television broadcasting comes to an end during recording, the hi-fi sound being recorded from an external source may distort. It is recommended that you check the timetable of TV broadcasts in advance.
- After finishing recording, be sure to press the SC button to switch back to the Tuner mode; otherwise, recording on the hi-fi audio track from the built-in tuner will not be possible.

USING THE HR-D750E AS AN AUDIO TAPE DECK

You can record audio only (without recording any video signal) on the hi-fi audio track. This means you can record a continuous 8-hour FM programme onto a single cassette (E-240).

- Connect an audio source (such as an FM tuner) to the AUDIO IN connectors.
- Tune the built-in tuner to a vacant channel.
- Press SC button. The SC indicator on the FDP will light.
- In the Hi-Fi LP mode, only audio signals can be recorded.

AUTOMATIC TIMER RECORDING

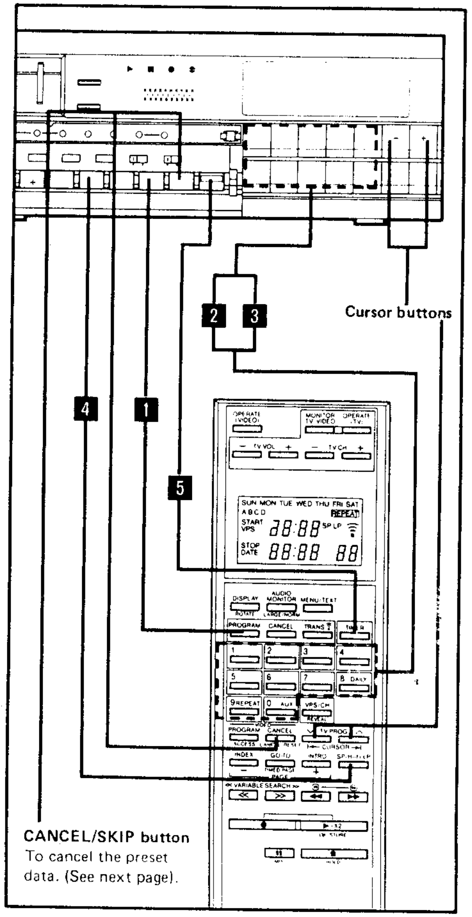
First of all, load a cassette (with safety tab in place); power will be switched on automatically.

Three ways to perform timer programming

A. **Local programming:** Programme the timer using the recorder's controls while referring to the recorder's FDP

B. **Direct remote programming:** Programme the timer using the remote control's keys while referring to the recorder's FDP.

C. **Independent remote programming:** Programme the remote control's memory using the remote control's keys while referring to its own LCD and then transfer the data to the recorder.

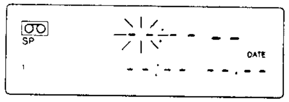


CANCEL/SKIP button
To cancel the preset data. (See next page).

A. Local Programming

1 Press PROG. ㊳.

- The display will change to the Timer Set mode for programme number "1". To advance to programme numbers 2 – 8, press PROG.

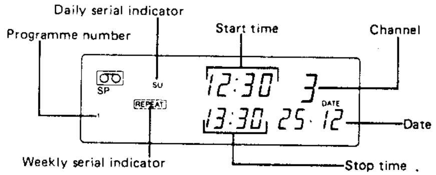


2 Enter the start time using numeric keys ⑯.

- Invalid numbers will be rejected.
- To key in a one-digit number of hours or minutes, first press "0". Then press the relevant numeric key.

3 When the display changes to the next stage, key in the stop time, date and channel in succession using numeric keys.

- To record a daily serial starting on the day of setting, press NEXT "+" ⑬ without entering any date figure.
- To record a daily serial starting on a certain day, press [8] and enter the date.
- To record a weekly serial, press [9] and enter the date.
- Both "daily" and "weekly" commands can be entered or cancelled by pressing the corresponding button any time in the date and time setting stages.
- For keying in channel numbers, refer to page 9.
- For programming the timer to record an external source, press the numeric key "0" while the channel is blinking; "AU" will appear in the channel display section on the FDP.



- When not using the VPS recording system with the VPS adapter connected, press VPS to make "VPS" disappear.

4 Press SP/Hi-Fi LP ㉞ to obtain the desired recording mode indication on the display.

- The SP or Hi-Fi LP entry can be made anytime while in the Timer Set mode.

5 After making sure that the cassette is loaded, press TIMER ㊶.

- The Timer Recording Standby mode will be engaged with the TIMER indicator and the preset programme number(s) illuminated and the power turned off.
- With no cassette loaded, the TIMER and "cassette loaded" indicators will continue blinking.
- A cassette whose safety tab has been removed will be rejected automatically.
- If a preset programme contains errors, that programme number will not be illuminated. Recheck the programmed data.

B. Direct Remote Programming

Following the procedures above, use the remote control's buttons instead of the recorder's with the remote control directed toward the recorder's Remote Sensor window ❸.

AUDIO DUBBING

Audio dubbing means recording a new soundtrack on a pre-recorded tape. In other words, the previously recorded sound is erased and replaced with a new soundtrack. **Audio dubbing is applicable only to the longitudinal audio track (normal audio).** Therefore, a dubbed narration can be heard together with the original hi-fi sound.

1 Switch on the TV receiver.
- Adjust the TV receiver's channel to your video channel.

2 Load a pre-recorded cassette. Power will be switched on automatically.

3 Connect a microphone or an audio source to the MIC IN jack ㉔ or the AUDIO/VIDEO socket ㉑ respectively.
- With both microphone and audio source connected, mixed sound is recorded.

4 Press "0" of the numeric keys ⑯ .
- If you record sound only from the microphone, the source equipment connected to the AUDIO/VIDEO socket should be off.

5 Press PLAY/X2 ⑤ to start playback and then press REW or FF ④ to search for the point from which you wish to start audio dubbing.

6 Press PAUSE/STILL ⑲ at the start point of audio dubbing.

7 Press AUDIO DUB ⑥ .

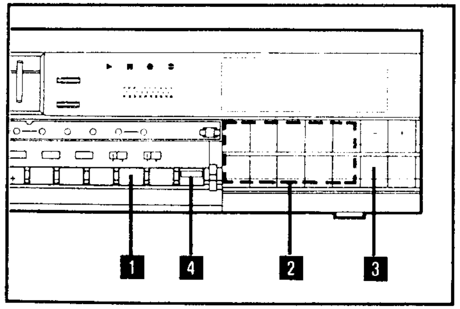
8 Press PLAY/X2.
- Audio dubbing will start.

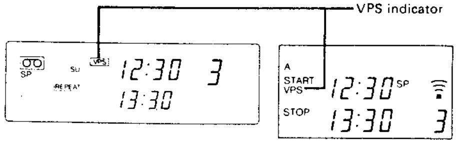
Notes:
- It is recommended that you use a lower-impedance microphone.
- If whistling or howling is heard during audio dubbing, reduce the TV volume or move the microphone farther away from the TV. Recording is being performed even if sound is not heard from the TV receiver. If you want to monitor the sound being recorded, connect headphones to the PHONES jack.
- Marking index codes is not possible while audio dubbing is being performed.

CAUTION:
Audio dubbing is not possible with an audio source connected to the rear panel AUDIO IN connectors.

VPS RECORDING

In the VPS (Video Programme System) system, TV stations transmit different VPS codes for different TV programmes, which control the starting and stopping of the video recorder and have precedence over times preset in the timer for accurate recording of a particular programme from start to finish.





1 Press PROG. ㊳ (or VIDEO PROGRAM (57)) or, for the remote control's memory, (52) .

2 Set the start time, stop time, date and channel in the same way as for timer programming.

3 Make sure that the VPS indicator is lit; if not, press VPS ⑮ or (56) .
- All timer data will be converted to VPS codes and stored in memory.

4 Press TIMER ㊶ .
- The recorder will enter the VPS standby mode at 20:00 on the day previous to the preset day and remain engaged until 3:59 on the following day, if the intended programme has not yet been broadcast.
- When a VPS code corresponding to the intended TV programme is detected during the VPS standby mode, recording will start. When the VPS code changes to another, recording will stop.
- When an interruption code is detected during VPS recording, the VPS standby mode is engaged and recording restarts when the regular VPS code is restored.

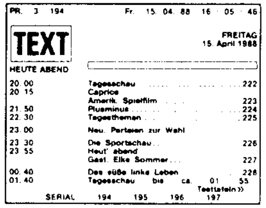
Notes:
- If no VPS code is detected from that station or a system status code which cancels VPS recording is detected, ordinary timer recording will be engaged.
- Operation at the end of VPS recording is the same as with ordinary timer recording.

TELETEXT PROGRAMMING

Teletext services are becoming popular and a vast number of teletext pages are now available for a variety of information. The HR-D750E is ready to take advantage of these services, not only for simple viewing but also for programming the HR-D750E's built-in timer in an extremely easy way. All you need to do is connect the optional VU-V120E VPV adapter or VU-V100E VPS/VPV adapter to the rear of the HR-D750E. Then the HR-D750E's remote control exhibits its full capability with all the dual- or triple-function control keys working as intended.

TELETEXT

- View broadcast teletext pages.
- Several page access modes are available for quick and convenient viewing.
- Programme the timer using TV schedule pages.



PR. 3 194 Fr. 15. 04. 88 16 · 05 · 46

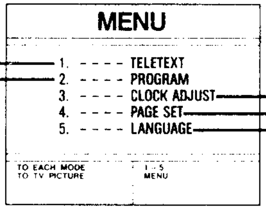
TEXT

FREITAG
15. April 1988

HEUTE ABEND

20. 00 Tagesschau 222
20. 15 Caprice
Amerik. Spielfilm 223
21. 50 Plusminus 224
22. 30 Tagesthemen 225
23. 00 Neu. Parteien zur Wahl
23. 30 Die Sportschau 226
23. 55 Heut' abend
Gast. Elke Sommer 227
00. 40 Das süße linke Leben 228
01. 40 Tagesschau bis ca. 01 55
Testtafeln »

SERIAL 194 195 196 197



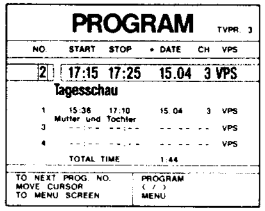
MENU

1. ---- TELETEXT
2. ---- PROGRAM
3. ---- CLOCK ADJUST
4. ---- PAGE SET
5. ---- LANGUAGE

TO EACH MODE 1 - 5
TO TV PICTURE MENU

PROGRAM

- Check the timer recording data on the colour display.
- Programme the timer manually with 10-key input.



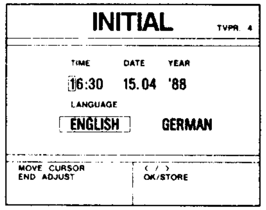
PROGRAM TVPR. 3

NO.	START	STOP	• DATE	CH	VPS
2	17:15	17:25	15.04	3	VPS
	Tagesschau				
1	15:36	17:10	15. 04	3	VPS
	Mutter und Tochter				
3	--:--	--:--	-- --	--	VPS
4	--:--	--:--	-- --	--	VPS
	TOTAL TIME		1:44		

TO NEXT PROG. NO. PROGRAM
MOVE CURSOR (/)
TO MENU SCREEN MENU

CLOCK ADJUST

- Set the VCR's clock manually with 10-key input.



INITIAL TVPR. 4

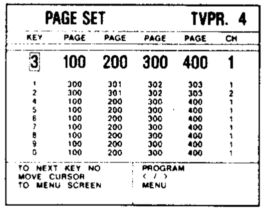
TIME DATE YEAR
16:30 15.04 '88

LANGUAGE
ENGLISH GERMAN

MOVE CURSOR (/)
END ADJUST OK/STORE

PAGE SET

- Preset teletext pages so that you can quickly access your favourite or frequently-referred-to pages.
- Four pages can be preset for each of the keys, 0 to 9, totalling 40 pages.



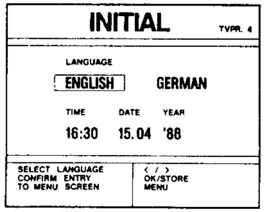
PAGE SET TVPR. 4

KEY	PAGE	PAGE	PAGE	PAGE	CH
3	100	200	300	400	1
1	300	301	302	303	1
2	300	301	302	303	2
4	100	200	300	400	1
5	100	200	300	400	1
6	100	200	300	400	1
7	100	200	300	400	1
8	100	200	300	400	1
9	100	200	300	400	1
0	100	200	300	400	1

TO NEXT KEY NO PROGRAM
MOVE CURSOR (/)
TO MENU SCREEN MENU

LANGUAGE

- Select either English or German for on-screen messages.



INITIAL TVPR. 4

LANGUAGE
ENGLISH GERMAN

TIME DATE YEAR
16:30 15.04 '88

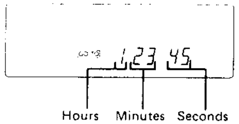
SELECT LANGUAGE (/)
CONFIRM ENTRY OK/STORE
TO MENU SCREEN MENU

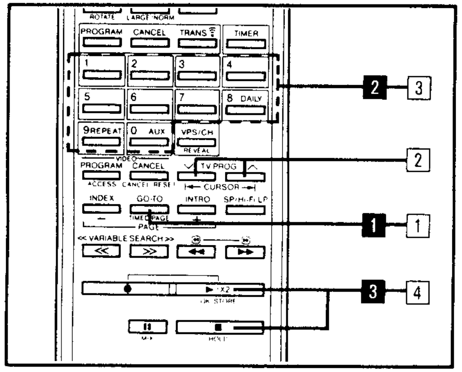
REALTIME TAPE COUNTER FUNCTIONS

Unlike usual tape counters which show tape locations in numbers, this realtime tape counter shows tape time precisely in hours, minutes and seconds in all modes (Record, Play, Rewind, Fast Forward).

Time Go-To function

The Time Go-To function gives you direct access to any point on the tape by simply specifying the time from the beginning of the tape.





1 Press GO-TO ⑹ while in the Play, Stop or Still mode.
- The counter will change to the Go-To mode.

2 Specify the time (from the beginning of the tape) to the point to be located, by using the numeric keys ⑸.

3 Press ►/X2 (67) or ■ (69).
- Always key in a full number.
- Depending on the situation, search will take place either in the Shuttle Search mode or in the Rewind or Fast Forward mode which is much faster than the Shuttle Search mode. After the specified point is reached, playback starts automatically or the tape stops automatically depending on the command.

Pressing ►/X2 from Play or Still mode:	Shuttle Search – Automatic start of playback
Pressing ►/X2 from Stop mode:	◄◄ or ►► – Automatic start of playback
Pressing ■ from Play, Still or Stop mode:	◄◄ or ►► – Automatic stop

- If the recorder did not detect the leader tape when the cassette was loaded (indicated by "-H--M--S" when the Go-To button is pressed), the tape is first rewound to the beginning of the tape and then is fast-forwarded to the specified point.

Time Search function

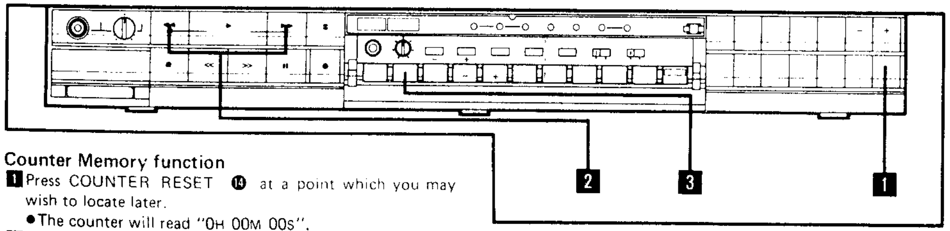
The Time Search function lets you locate a point on the tape a specified time span away from the current position in either direction.

1. Press GO-TO (61) while in the Play, Stop or Still mode.
2. Press TV PROG. "∨" or "∧" (59) to specify the direction of search.
3. Specify the time (from the current position) to the point to be located, by using the numeric keys (55).
4. Press ►/X2 or ■ .

- The tape will move to the specified point and automatically start playback or stop.

Notes:
- Each step in the operation procedure must be followed by the next within 60 seconds, otherwise the Go-To or Search mode will be cancelled.
- If the GO-TO button was pressed in the Play or Still mode, when the specified point is reached, a still picture will be displayed as a result of having pressed the ❚❚ button, instead of ►/X2 or ■ , after having keyed in the time.
- Use of other control buttons, while in either the Time Go-To or Search mode, cancels that mode.
- If the specified time exceeds the tape length, the tape fast forwards to the end and then rewinds to the beginning and stops.

COUNTER MEMORY FUNCTION/LAP TIME INDICATION



Counter Memory function

1 Press COUNTER RESET ⑭ at a point which you may wish to locate later.
- The counter will read "0H 00M 00S".

2 Press COUNTER MEMORY ㉘ . [M] will appear in the FDP.

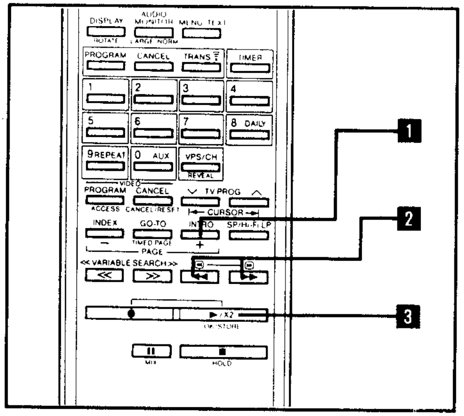
3 Press REW (or FF) ④ when you need to return to the designated point.
The tape will rewind (or fast forward) and stop at about the "0H 00M 00S" counter reading automatically.

Lap Time Indication

When you need to know the exact time of a recording, press the COUNTER RESET button before starting recording or playback. The counter will be reset to "0H 00M 00S" and show the exact elapsed time as the tape runs.

INTRO SEARCH FUNCTION

The Intro Search function lets you visually check the contents of each recording by playing back in fast motion a short segment of a programme each time an index code is detected.



1 Press INTRO (63) while in the Play or Stop mode.
- The INDX indicator on the FDP will light.

2 Press the ◄◄ or ►► button (65) within 2 seconds.
- The Intro Search will start in the corresponding direction.
- Each time an index code is detected, the corresponding part is played back at the search speed (9 times normal) for about 5 seconds.

3 When you find the section you want to view, simply press the ►/X2 button (67) .
- Normal playback will start.

NEXT-FUNCTION MEMORY

Memory Play function
- If you want to watch the tape from its beginning after rewinding, press the REW button and then PLAY/X2 within 2 seconds. Playback will start automatically at the beginning of the tape. (Check to see that the counter memory indicator [M] is off.)
- If you want to watch the tape from the counter reading of "0H 00M 00S", press the COUNTER MEMORY button to obtain [M] . Then, press the REW (or FF) button and then PLAY/X2.
- While the tape is being rewound, the PLAY/X2 indicator is blinking. To cancel the Memory Play mode and go to another mode, press the corresponding button (STOP, PLAY/X2, FF, REW)

Memory Eject/Power-Off/Timer Standby
If you are going to eject the cassette, turn the power off or engage the Timer Standby mode after rewinding the tape, you don't have to wait for completion of rewind to press the corresponding button.
- To eject the cassette after rewind, press REW and then EJECT within 2 seconds. (To cancel the Memory Eject mode, press STOP.)
- To turn the power off after rewind, press REW and then OPERATE within 2 seconds. (To cancel the Memory Power-off mode, press OPERATE.)
- To engage the Timer Standby mode after rewind, press REW and then TIMER within 2 seconds. (To cancel the Memory Timer Standby mode, press TIMER.)

Memory Play	REW/FF	➡	PLAY/X2	PLAY/X2	Blinking	➡	Play mode
Memory Eject	REW	➡	EJECT		Blinking	➡	Cassette ejected
Memory Power-off	REW	➡	OPERATE	OPERATE	Blinking	➡	Power off
Memory Timer Standby	REW	➡ within 2 seconds	TIMER	TIMER	Lights	➡	Timer standby mode

RECORDING FROM AN EXTERNAL SOURCE

By connecting an external video source (such as a VideoMovie camera-recorder, 2nd video recorder, video camera, etc.) to the AUDIO/VIDEO socket (71) , recording and/or editing are possible.

- For connection of these units, an appropriate cable is necessary.
- For connection of a video camera, a camera adapter is also necessary. Connect the camera adapter's PAUSE terminal to the recorder's PAUSE connector (79) , then you can control taping start/stop with the camera's start/stop switch. For proper connection of a camera, consult a JVC dealer.

1. Turn the power on for all connected equipment.
2. Adjust the TV receiver to your video channel.
3. Load a cassette.
4. Press either CH (–/+) button ⑬ or the numeric key 0/AUX ⑯ to obtain "AU" in the channel display.
5. Press SP/Hi-Fi LP ㉞ for required mode.
6. Operate the source equipment properly.
7. Press REC/ITR ⑱ .
   - When recording with a camera, press REC/ITR and PAUSE/STILL to enter the Recording Standby mode, then control taping start/stop with the camera's start/stop switch.
8. To stop recording temporarily, press PAUSE/STILL ⑲ .
9. To end recording, press STOP ㉑ .

Note:

- For the operation of the source equipment, refer to the instruction manual of the relevant machine.

IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first . . . .

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	● Is the power cord disconnected? – Connect it.
Clock is functioning properly, but the recorder cannot be powered.	● Is the TIMER indicator lit on the FDP? – Press TIMER to disengage the Timer Recording Standby mode.
Tape does not run during recording.	● Is the PAUSE/STILL button engaged? – Press the PLAY/X2 button.
Tape stops in the Rewind or Fast-Forward mode.	● Is the COUNTER MEMORY button pressed to ON? – Press it so M no longer appears on the FDP.
Tape will not rewind or fast forward.	● Is the tape already fully rewound or fast forwarded? – Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	● Is a cassette loaded? ● Is the safety tab on the cassette removed? · Reseal the slot with cellophane tape.
Camera recording is not possible.	● Are the camera and the camera adapter correctly connected? ● Is the power switch of the camera adapter set to ON? ● Does the channel display indicate "AU"? – Press "0/AUX".
Simulcast recording is not possible.	● Has the SC button been pressed? – Press it so "SC" appears on the FDP. ● Is an audio source correctly connected to the AUDIO IN connectors? – Check connections.
Timer recording is not possible.	● Have you set the clock correctly and programmed the timer correctly? – Check once again. ● Is the TIMER indicator lit on the FDP? – Press TIMER.

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	● Is the TV receiver's channel selector set to the correct video channel? – Set it to the RF converter channel. (See page 8.)
Noise appears during playback.	● Press TRACKING buttons.
Playback picture is blurred or interrupted while TV broadcasts are clear.	● Video heads may be dirty. – Head cleaning is necessary. Consult your JVC dealer.

HI-FI AUDIO PROBLEMS

Symptoms	Check points
TV sound cannot be recorded on hi-fi audio track.	● Has the SC button been pressed? – Press it again so "SC" no longer appears on the FDP.
Soundtrack on the hi-fi audio track cannot be reproduced.	● Is the NORMAL indicator lit? – Press the Hi-Fi/NORM/MIX button for L and R to light as required.

OTHERS

Symptoms	Check points
Whistling or howling is heard from TV.	● Move camera or microphone away from TV or reduce TV sound volume.
Some channels are skipped over when selecting a channel.	● Those channels are preset to be skipped over. If you need them, restore them. (See page 10.)
Channel cannot be switched.	● Is recording in progress? – Press PAUSE/STILL, select a desired channel and press PLAY/X2.

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

HEAD CLEANING

- Picture playback may become blurred or interrupted while the TV programme received is clear. This does not mean that the recorded programme has been erased.
- Dirt accumulated on the video heads after long periods of use causes such problems. In this case, head cleaning requiring highly technical care is necessary.

For head cleaning, consult your JVC dealer.

1.1.3 Disassembly

1. Top cover
1) Take out five screws from the right, left and rear sides of the set.
2) Tilt up the rear end of the top cover, then remove it.

2. Front panel
1) Remove the top cover.
2) Bend three upper hooks of the front panel assembly upward to disengage them from their chassis retainers.
3) Disengage three lower hooks of the front panel assembly from their chassis retainers in order to remove the front panel assembly.

3. Bottom cover
1) Take out three screws from the bottom side of the set.
2) Set free the bottom cover from its six retainers of the chassis in order to remove the bottom cover.

4. Cassette housing door
1) Remove the front panel assembly.
2) Bend center of the cassette housing door toward you, then pull out the right end from the cassette housing.
3) Use care regarding the torsion spring, then pull out the left end of the cassette housing door to remove it.

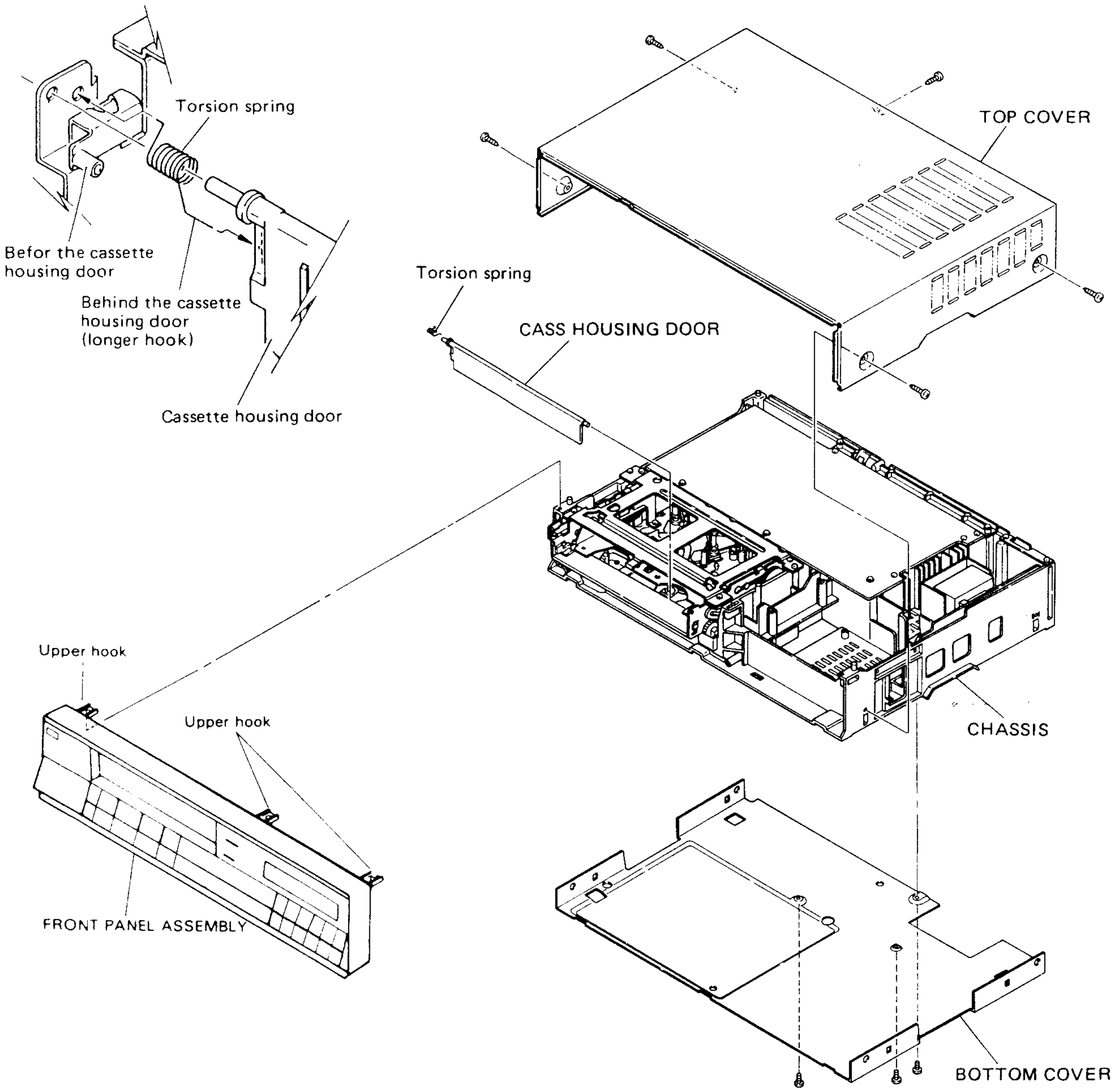

Torsion spring
Befor the cassette housing door
Behind the cassette housing door (longer hook)
Cassette housing door
Torsion spring
CASS HOUSING DOOR
TOP COVER
CHASSIS
Upper hook
Upper hook
FRONT PANEL ASSEMBLY
BOTTOM COVER

Fig. 1-1-1 Removal of external covers

SECTION 1
MECHANISM ADJUSTMENTS

1.1 GENERAL

1.1.1 Precautions

IMPORTANT:

1. Disconnect unit from power before removing or soldering components.
2. When removing a fastener (screw, washer, etc.), be careful not to drop it into the mechanism. If a fastener should be dropped, be sure to retrieve it.
3. The tape transport mechanism has been precisely adjusted at the factory and ordinarily does not require readjustment.
4. When removing a part, be very careful not to damage or displace other parts. (Be especially careful with the tape guides and rotary video head drum.)
5. For service procedures that call for operation of the set when the cassette housing is separated from the main-deck, perform as below.

1) Set a sheet of insulated material on the right of the chassis.
2) Remove the cassette housing from the main-deck and place it on the insulated sheet, but do not disconnect the connector from the M. CTL board.
3) Insert a cassette into the cassette housing. The housing mechanism functions to retract the cassette.
4) Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
5) The desired modes can be obtained by using the opration switches.

1.1.2 Required test equipment, fixtures and tools

For proper mechanical adjustment, the following test equipment, fixtures and tools are strongly recommended. Without them, a long trial-and-error period would be necessary, resulting in possible damage. In addition, general-purpose tools are required.

1. Test equipment required:
   Color television or monitor
   Oscilloscope: Wide-band, dual trace, triggered, delayed sweep
   Recording tape
   Alignment tapes

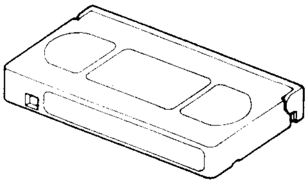
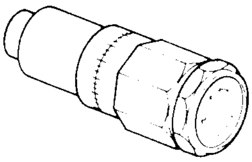
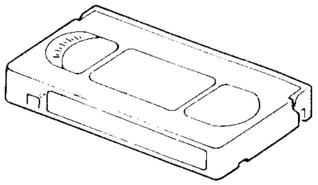
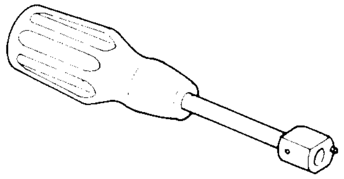
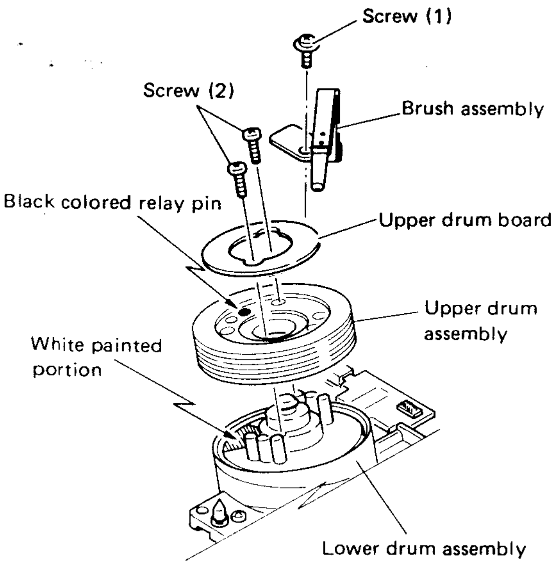
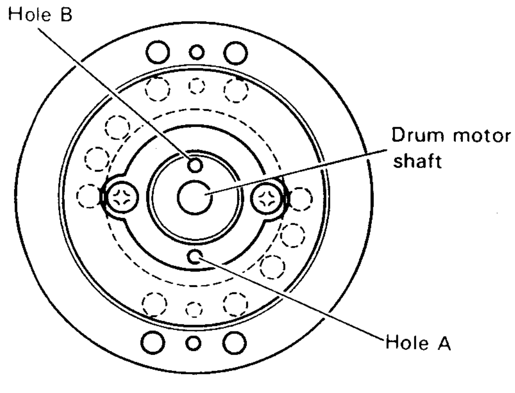
Alignment tape MH-2 	Torque gauge assembly PUJ48075-2 	Back tension cassette gauge PUJ48076-2 
A/CTL head position tool PUJ47351-2 		

Table 1-1-1 Fixtures and tools

1.2 MAIN ASSEMBLY REPLACEMENT

No.	Item	Adjustment parts	Operating mode	Description
1	Upper drum assembly			**Note:** When installing the new upper drum, use care not to touch the video heads. If heads are soiled, clean with a soft, finely woven cotton cloth or chamois that has been moistened in alcohol. Hold lightly against the heads and turn the drum clockwise. By no means clean with a vertical stroke.
	– Removal –  Screw (1) Screw (2) Brush assembly Black colored relay pin Upper drum board Upper drum assembly White painted portion Lower drum assembly **Fig. 1-2-1** Upper drum assembly			1) Refer to Fig. 1-2-1. Take out screw (1) and remove the brush assembly. 2) Use a desoldering tool or desoldering braid to unsolder the upper drum boards. 3) Take out two screws (2) and raise the upper drum to remove it together with the upper drum board. (If this drum is to be reinstalled, use care not to touch or damage the heads.)
	– Installation –  **Fig. 1-2-2** Polarity of the upper drum			1) Install a new upper drum assembly so that the black-colored relay pin of the upper drum assembly overlies the white painted portion of the lower drum assembly, as shown in Fig. 1-2-1. **Note:** Be sure to position the upper drum correctly. As indicated in Fig. 1-2-2, set hole A of the upper drum opposite the shaft from hole B of the lower drum. Check for correct position before tightening the screws. 2) Tighten two screws in a balanced manner. 3) Set the DRUM PWB on the upper drum assembly, then resolder it. 4) Clean the drum unit (particularly clean the upper drum assembly). 5) Mount the brush assembly in the original position, then tighten the screw to fix the brush assembly.
	– Checks and adjustments –			After installing the upper drum, perform the following checks and adjustments (refer to appropriate Sections of this Manual). 1) FM waveform 2) Servo circuit 3) Video circuit 4) FM audio circuit

1.1.4 Layout of main parts

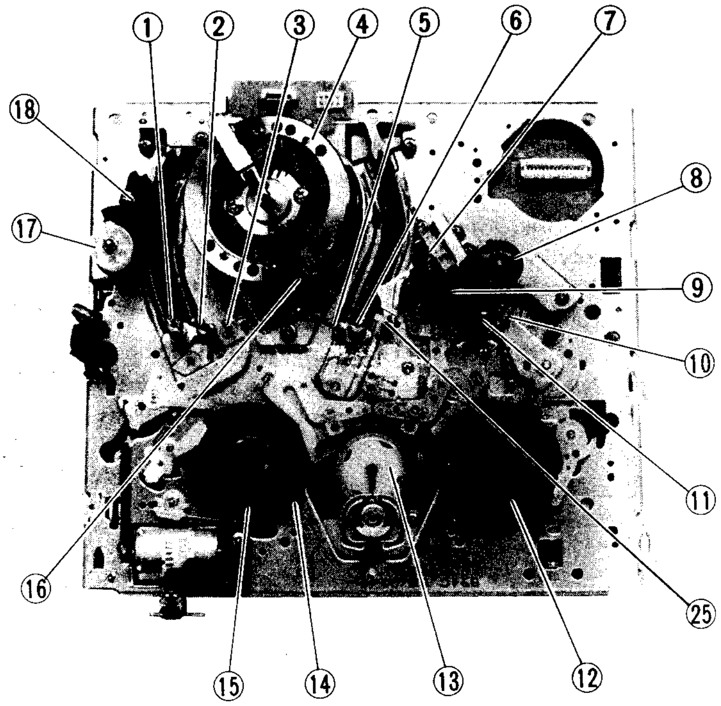


Fig. 1-1-2 Top view of main-deck

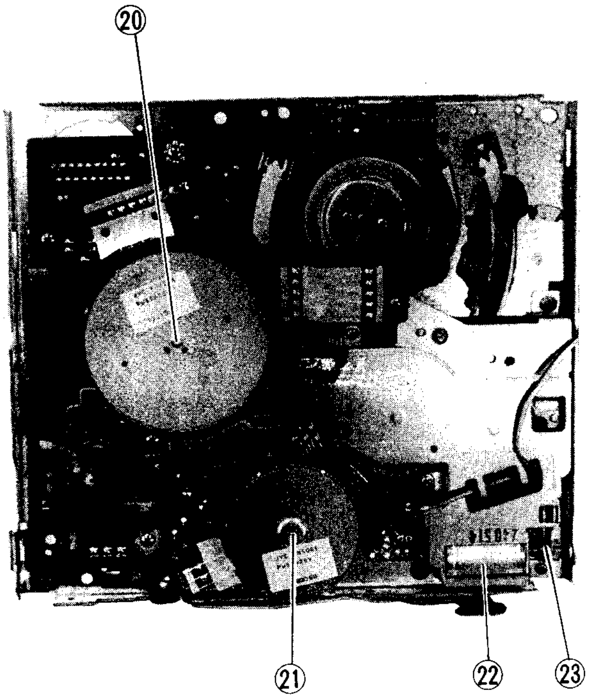


Fig. 1-1-3 Bottom view of main-deck

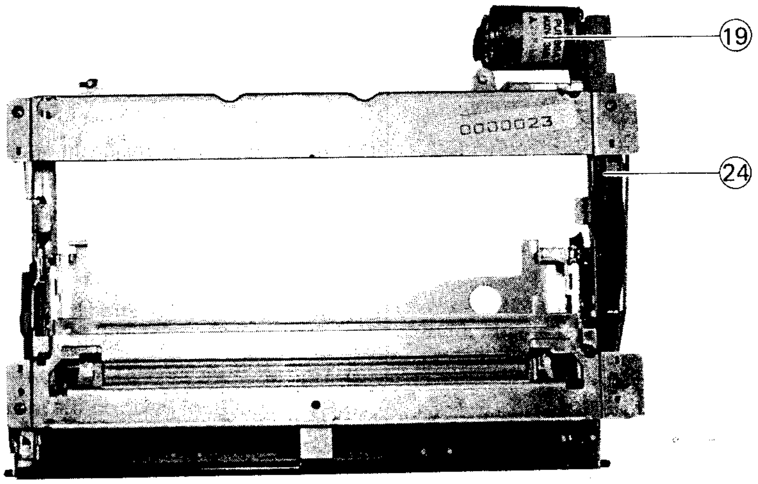


Fig. 1-1-4 Cassette housing

1. Supply guide roller
2. Supply slant pole
3. Tension pole
4. Upper drum
5. Take-up slant pole
6. Take-up guide roller
7. A/C head
8. Pinch roller
9. Take-up guide pole
10. Guide arm
11. Capstan
12. Take-up reel disk
13. Reel idler
14. Tension band
15. Supply reel disk
16. Lower drum
17. Impedance roller
18. Full erase head
19. Cassette motor
20. Capstan motor
21. Reel motor
22. Mode motor
23. Mode belt
24. Cassette belt
25. Half loading pole

1.1.4 Layout of main parts

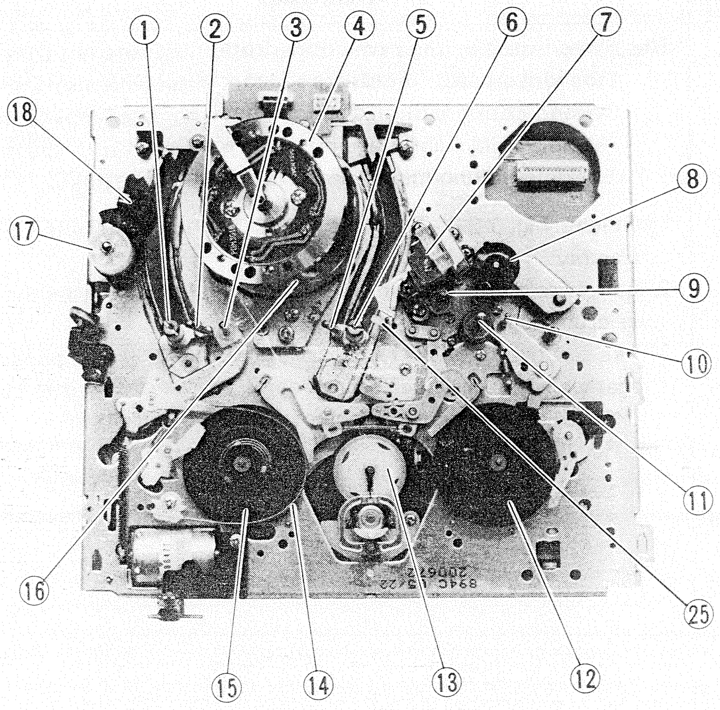


Fig. 1-1-2 Top view of main-deck

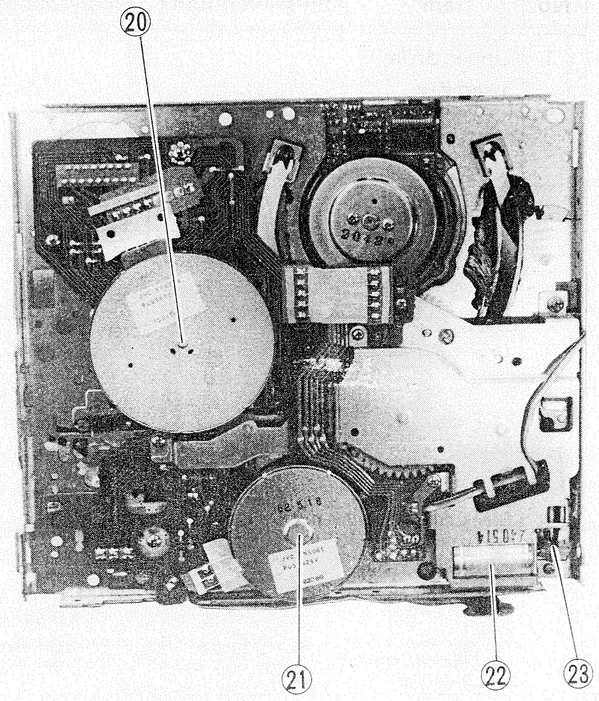


Fig. 1-1-3 Bottom view of main-deck

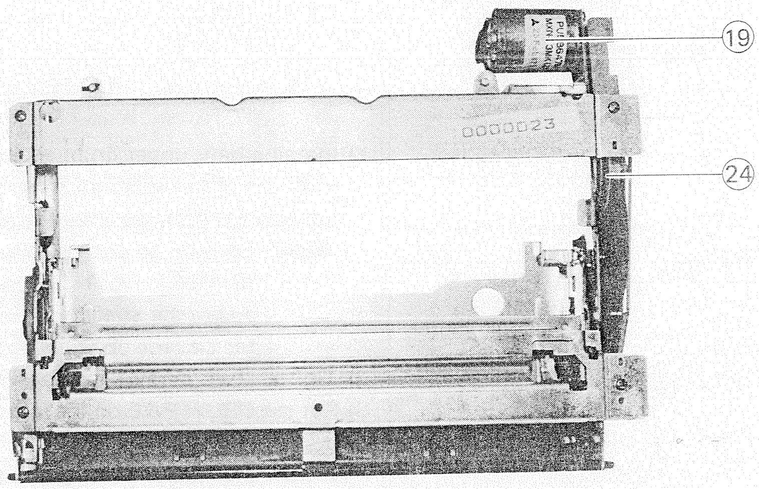
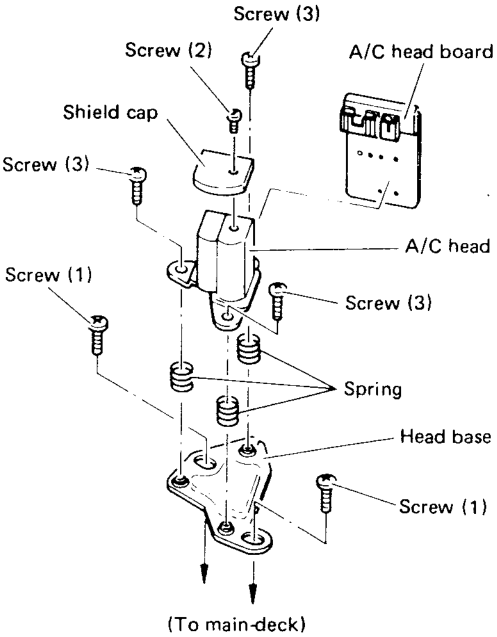
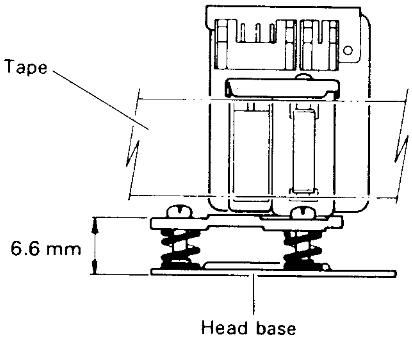
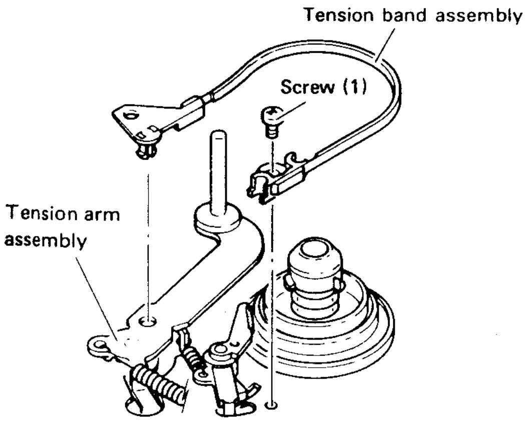


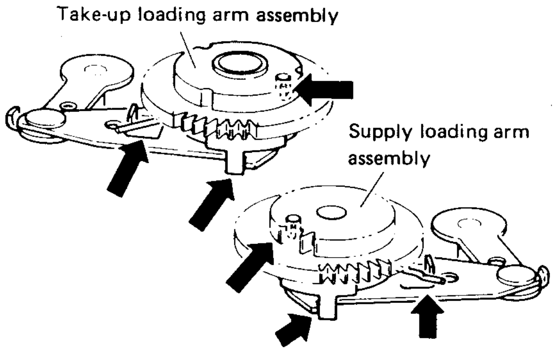
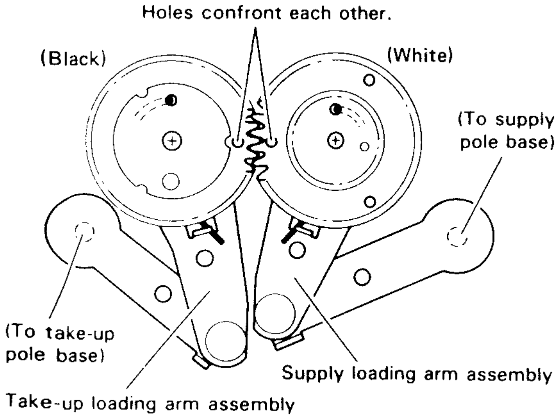
Fig. 1-1-4 Cassette housing

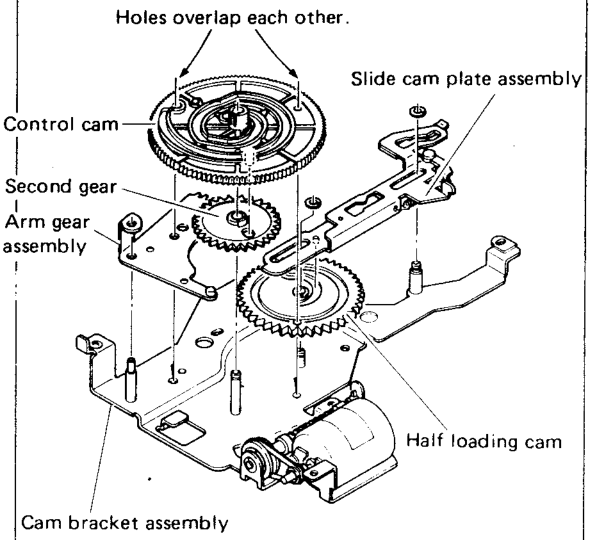
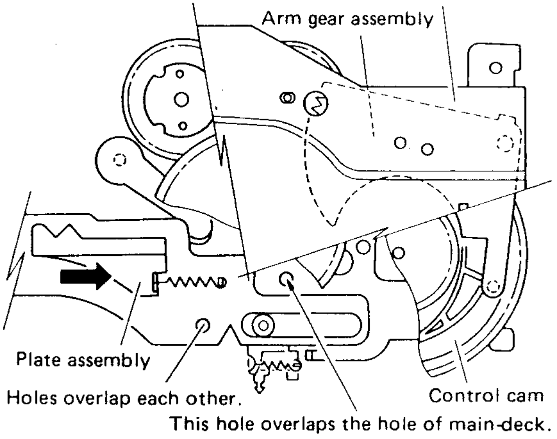
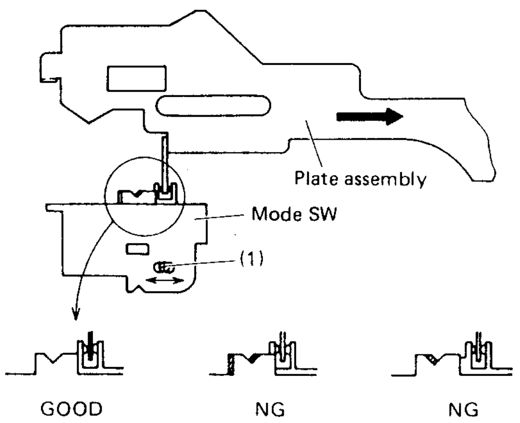
1. Supply guide roller
2. Supply slant pole
3. Tension pole
4. Upper drum
5. Take-up slant pole
6. Take-up guide roller
7. A/C head
8. Pinch roller
9. Take-up guide pole
10. Guide arm
11. Capstan
12. Take-up reel disk
13. Reel idler
14. Tension band
15. Supply reel disk
16. Lower drum
17. Impedance roller
18. Full erase head
19. Cassette motor
20. Capstan motor
21. Reel motor
22. Mode motor
23. Mode belt
24. Cassette belt
25. Half loading pole

No.	Item	Adjustment parts	Operating mode	Description
2	A/C head (Audio/Control head)			
	– Removal –  Screw (3) Screw (2) A/C head board Shield cap Screw (3) A/C head Screw (1) Screw (3) Spring Head base Screw (1) (To main-deck) **Fig. 1-2-2** A/C head			1) Disengage connectors attached to the A/C head board. 2) Take out two screws (1) and remove the A/C head together with the head base. 3) Unsolder and remove the A/C head board from the A/C head. 4) Take out screw (2) and remove the shield cap from the A/C head. 5) Take out three screws (3) and remove the A/C head from the head base. Use care regarding the three springs.
	– Installation –  Tape 6.6 mm Head base **Fig. 1-2-3** A/C head height			1) Install the A/C head by reversing the removal steps of above. 2) Temporarily set the A/C head height above the head base for 6.6 mm (see Fig. 1-2-3).
	– Checks and adjustments –			1) Use a spare tape (not Alignment tape) and confirm proper operation of the tape transport (see Section 1.5). 2) Perform interchangeability adjustment (see Section 1.6).

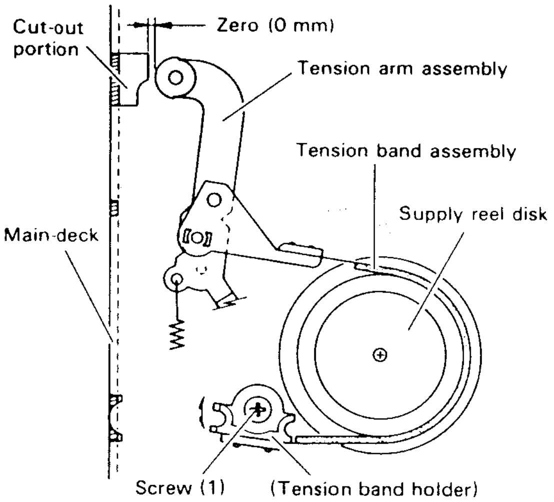
No.	Item	Adjustment parts	Operating mode	Description
3	Tension band assembly  Tension band assembly Screw (1) Tension arm assembly Fig. 1-2-4 Tension band assembly			1) Take out screw (1) and disengage the tension band assembly from the tension arm assembly (see Fig. 1-2-4). 2) Remove and replace the tension band assembly. 3) Perform tension pole position adjustment (see Section 1.4).

1.3 ASSEMBLY PROCEDURE OF MECHANISM

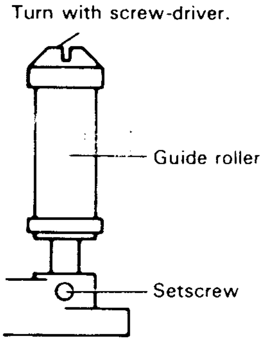
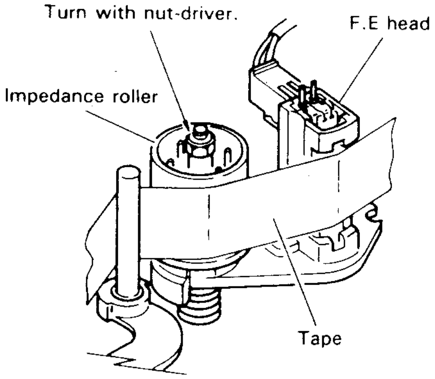
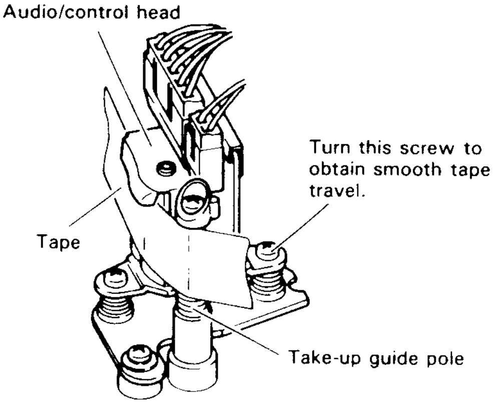
No.	Item	Adjustment parts	Operating mode	Description
	A close relationship exists between the mode select switch and the mechacon circuit. Therefore, the mode select switch and control arm engagement determines the overall mechanical operations of the levers, gears, rollers, etc. If these parts are not properly positioned, the video deck becomes stalled in the unloading or Stop mode.			
1	Loading arm assemblies  Take-up loading arm assembly Supply loading arm assembly Fig. 1-3-1 Loading arm assembly (1)  Holes confront each other. (Black) (White) (To supply pole base) (To take-up pole base) Supply loading arm assembly Take-up loading arm assembly Fig. 1-3-2 Loading arm assembly (2)			These assemblies are comprised of loading gears, torsion springs and loading arms. 1) Refer to Fig. 1-3-1 and install the loading arm assemblies correctly. 2) The take-up and supply loading arm positions with respect to the loading gear holes are indicated in Fig. 1-3-2. This configuration is important to allow shifting to the next operation.

No.	Item	Adjustment parts	Operating mode	Description
2	Control cam  Holes overlap each other. Slide cam plate assembly Control cam Second gear Arm gear assembly Half loading cam Cam bracket assembly **Fig. 1-3-3** Control cam			1) Install the half loading cam on the cam bracket assembly, then mount the slide cam plate assembly so that its stud sets into the groove on the half loading cam. 2) Install the arm gear assembly on the cam bracket assembly. 3) Assemble the second gear and the control cam so that the stud of the control cam sets into the hole of the second gear. 4) Mount the above assembly (control cam and second gear) on the cam bracket assembly to satisfy the relation indicated in figure. 5) Do not turn the control cam from this position for the next step.
3	Cam bracket assembly  Cam bracket assembly Arm gear assembly Plate assembly Holes overlap each other. Control cam This hole overlaps the hole of main-deck. **Fig. 1-3-4** Cam bracket assembly			1) Refer to Fig. 1-3-4 and press the plate assembly toward the right to overlap the indicated hole with that of the main deck. 2) Then install the cam bracket assembly. **Note:** If the arm and loading gears do not mesh properly, use a jeweler's screwdriver or similar tool to engage the gear teeth while installing the cam bracket assembly.
4	Mode switch position  Plate assembly Mode SW (1) GOOD NG NG **Fig. 1-3-5** Mode switch			1) Engage the plate assembly and mode switch as shown in Fig. 1-3-5. Partially tighten screw (1) to where the switch can still be shifted for adjusting the position. 2) Press the plate assembly toward the right to where the holes are overlapped as in Fig. 1-3-4. Insert a jeweler's screwdriver into the holes to keep them aligned. 3) Shift the mode switch to align the V-notch as indicated in Fig. 1-3-5. Then tighten screw (1) to secure. 4) Remove the jeweler's screwdriver, then reinstall and solder the circuit board.

1.4 CONFIRMATION AND ADJUSTMENT

No.	Item	Adjustment parts	Operating mode	Description
1	Tension pole position  Cut-out portion Zero (0 mm) Tension arm assembly Tension band assembly Supply reel disk Main-deck Screw (1) (Tension band holder) **Fig. 1-4-1** Tension pole position			1) Without a cassette tape, set for the Play mode (see Section 1.1). 2) Refer to Fig. 1-4-1. Slightly loosen screw (1). Adjust the tension band holder position for 0 mm separation between the tension arm and cutout position. 3) Tighten screw (1) to secure the tension band holder. 4) Use the back tension cassette gauge and set for the Play mode. 5) Check for a scale reading between 25 and 75. 6) If outside this range, clean the tension band contacting portions of the supply reel disk with alcohol, or check the condition of the tension arm spring. If necessary, replace the tension band assembly.
2	Take-up torque			1) Without a cassette tape, set for the Play mode (see Section 1.1). 2) Set the torque gauge on the take-up reel disk. 3) Grasp the torque gauge lightly so that it rotates and read the value when the scale matches the indicator needle. Confirm a value between 45 and 155. 4) If outside this range, clean the rubber portion of the idler arm with alcohol, or if necessary, check the reel motor drive circuit.

1.5 TAPE TRANSPORT CHECKS AND ADJUSTMENT PREPARATIONS

No.	Item	Adjustment parts	Operating mode	Description
	The tape transport system has been precision-adjusted at the factory and ordinarily does not require readjustment. However, adjustment may become necessary after long term usage or after replacing parts that affect the tape transport. The following steps mainly cover preparations for the interchangeability adjustments of Section 1.6.			
1	Guide roller  Turn with screw-driver. Guide roller Setscrew **Fig. 1-5-1** Guide roller			1) During interchangeability adjustments, the guide roller is turned with a flat-blade screwdriver to adjust its height and correct FM waveform linearity. Use a metric hex key (1.25 mm) to slightly loosen the setscrew at the base of the guide roller (see Fig. 1-5-1). Loosen the setscrew just sufficiently to allow the guide roller to be turned. If too loose, tape transport will be too unstable to permit correct adjustment.
2	Impedance roller  Turn with nut-driver. F.E head Impedance roller Tape **Fig. 1-5-2** Impedance roller			1) This compensates for tape running stability between the cassette and head drum. After adjusting the supply guide roller, the impedance roller height is adjusted for smooth tape transport at the lower flange. 2) Use a metric nutdriver (5.5 mm) to adjust by turning the upper nut (see Fig. 1-5-2). However, note that excess turning can disturb the FM waveform stability.
3	A/C head (audio/control head)  Audio/control head Turn this screw to obtain smooth tape travel. Tape Take-up guide pole **Fig. 1-5-3** A/C head			1) After adjusting the take-up guide roller, adjust the A/C head inclination for smooth tape travel at the lower flange of the take-up guide pole. Refer to Fig. 1-5-3.

1.6 INTERCHANGEABILITY CHECKS AND ADJUSTMENTS

<table>
<tr><th>No.</th><th>Item</th><th>Adjustment parts</th><th>Operating mode</th><th>Description</th></tr>
<tr><td></td><td colspan="4">Before using costly Alignment tape, use a spare tape and confirm correct operation of the tape transport.</td></tr>
<tr><td>1</td><td colspan="3">FM waveform
$\frac{b}{a} \geqq 0.7, \frac{c}{a} \geqq 0.5$ and $\frac{d}{a} \geqq 0.5$

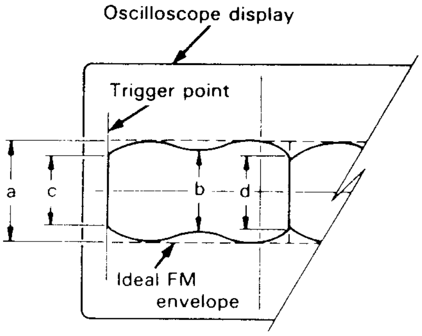



Fig. 1-6-1 FM envelope

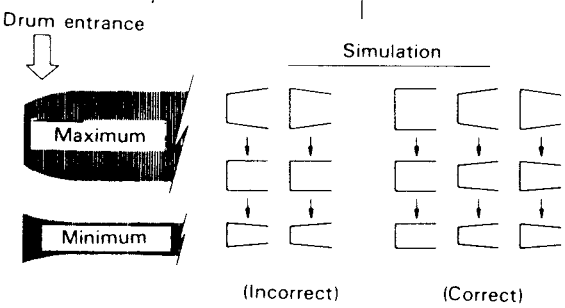



Fig. 1-6-2 Drum entrance

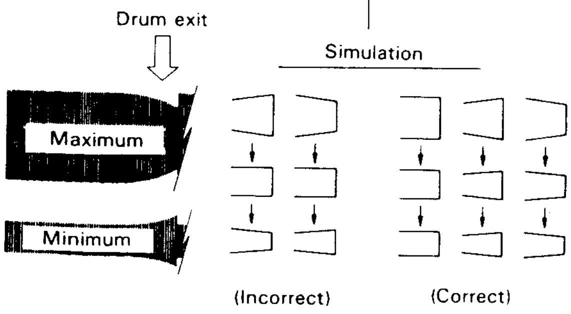



Fig. 1-6-3 Drum exit</td><td>1) Connect oscilloscope to the FM OUT testpoint of the video playback circuit. Trigger the oscilloscope externally with the signal from the drum flipflop (D-FF or FF) testpoint. Set the trigger slope to minus (−).
2) Play the MH-2 Alignment tape and adjust the tracking for maximum FM waveform output. Refer to Fig. 1-6-1. Confirm the relationships indicated in the figure for maximum output (a), minimum center output (b), minimum output at the drum intake (c) and minimum output at the drum output (d).
3) Adjustment is required if the above specifications are not fulfilled. Even when these are fulfilled, check that the FM waveform varies linearly overall. If not, slight deviation in tracking will cause a large proportional level drop to result in noise appearing in the picture. Therefore, in this condition, proceed to the following checks and perform adjustments where necessary.
4) Operate the tracking adjustment between minimum and maximum outputs of the FM waveform. Observe the portion of the waveform corresponding to the drum intake (see Fig. 1-6-2). As the tracking is adjusted, although the gain may increase or decrease, the geometric shape of this part of the waveform should remain consistent.
If the shape varies, as shown by the incorrect examples in the figure, carefully perform adjustment of the supply guide roller height.
5) Next observe the portion of the waveform corresponding to the drum output (see Fig. 1-6-3), while operating the tracking adjustment. This should also vary only in gain, but not in shape.
If the shape varies, as shown by the incorrect examples in the figure, carefully perform adjustment of the take-up guide roller height.
6) Check the overall FM waveform. Fine-adjust both guide rollers so that variation is as minimum and linear as possible.
7) Observe the tape travel at the guide rollers and guide poles. Confirm absence of tape creasing or curling.
Confirm that the tape properly rides at the lower flange of the supply guide pole. Carefully adjust the guide pole height if necessary. This adjustment is important and affects FM waveform response.
If creasing or curling is observed at the take-up guide pole, carefully adjust the audio/control head inclination so that the tape rides properly at the lower flange of the guide pole.
Finally, again check the FM waveform.</td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Adjustment parts</th><th>Operating mode</th><th>Description</th></tr>
<tr><td></td><td colspan="4">Proper adjustment of the A/C head position is important for ensuring adequate audio output and S/N. Severe misalignment can prevent control signal pick-up and cause servo instability. Precise adjustment is particularly important for models that include tape indexing and addressing features, since these rely on control signal coding for operation.
To observe the audio signal, connect an oscilloscope to the test point (AUDIO OUT) of the audio circuit, or directly to the audio output terminal. In some cases, monitoring the sound with headphones may be helpful.</td></tr>
<tr><td>2</td><td colspan="3">A/C head adjustments

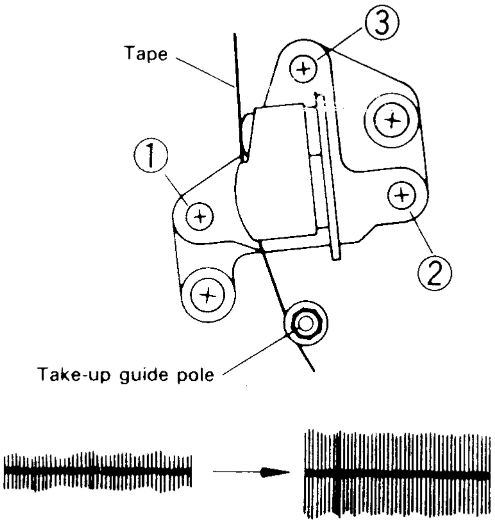
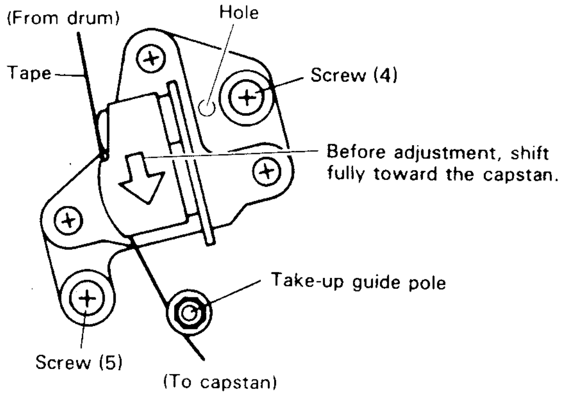



Fig. 1-6-4 A/C head</td><td>1) Play the stairstep (audio 7 kHz) portion of the MH-1 Alignment tape.
2) Adjust screw (3) (Fig. 1-6-4), which is the azimuth adjustment, for maximum output.
3) Turn screws (1), (2) and (3) by small and equal increments (about 45° at a time) to adjust the A/C head height for maximum audio output. Slightly raise and lower the height to confirm the maximum output position.
4) Observe the FM waveform and tighten the guide roller setscrews. Use care not to disturb the height adjustments. Then again confirm the FM waveform.</td></tr>
<tr><td></td><td colspan="4">This determines the distance between the sound and picture information on the tape. Correct adjustment is important for providing synchronization of picture and sound in the program.
Observe the FM waveform by connecting an oscilloscope to the video play-back circuit test point (FM OUT). Trigger the oscilloscope externally with the drum flipflop signal. Use plus (+) trigger to view the CH-2 waveform. Set the tracking adjustment to the neutral (AUTO) position.</td></tr>
<tr><td>3</td><td colspan="3">Control head phase (X value)


(From drum)
Hole
Tape
Screw (4)
Before adjustment, shift fully toward the capstan.
Take-up guide pole
Screw (5)
(To capstan)

Fig. 1-6-5 Control head phase</td><td>1) Play the stairstep portion of the MH-2 Alignment tape.
2) See Fig. 1-6-5. Slightly loosen screws (4) and (5). Set the A/C head positioning tool over screw (4) with the pin of the tool inserted into the indicated hole.
3) Turn the tool counterclockwise to shift the A/C head fully toward the capstan direction.
4) While observing the CH-2 FM waveform, gradually turn the tool clockwise. Stop at the peak output position and tighten screw (5). Remove the tool and tighten screw (4).
5) Operate the tracking adjustment and confirm that the maximum FM waveform is obtained at the neutral setting.
6) If the FM output peak is not obtained at tracking neutral position, shift the A/C head at the FM output peak nearest to this position.</td></tr>
</table>

No.	Item	Adjustment parts	Operating mode	Description
4	Final checks			1) Supply a video or TV signal (monochrome is preferable). Use a spare tape and record and play back. Confirm that the playback FM signal conforms to the parameters indicated in Fig. 1-6-1. 2) Perform the checks and, if necessary adjustments, of the Electrical Adjustments Section for the servo, video and audio circuits.

SECTION 2
ELECTRICAL ADJUSTMENTS

2.1 PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2.1.1 Required test equipment

1. Color television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Vector scope
5. Audio oscillator
6. Audio voltmeter
7. Digital voltmeter
8. Signal generator: RF/IF sweep/marker
9. Signal generator: PAL color bar, stairstep
10. Signal generator: Audio multiplex TV Signal Generator
11. Recording tape
12. Alignment tape: (MH-2)

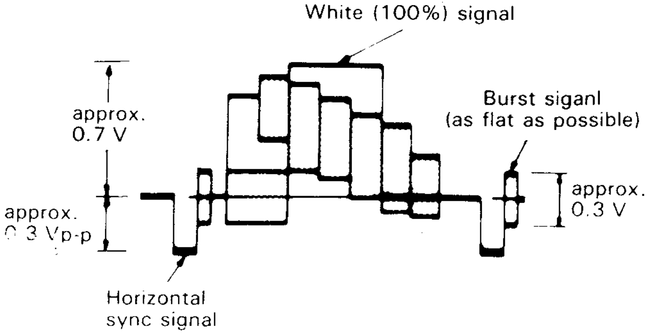

White (100%) signal
approx. 0.7 V
Burst siganl (as flat as possible)
approx. 0.3 V
approx. 0.3 Vp-p
Horizontal sync signal

Fig. 2-1-1 Color bar signal of pattern generator

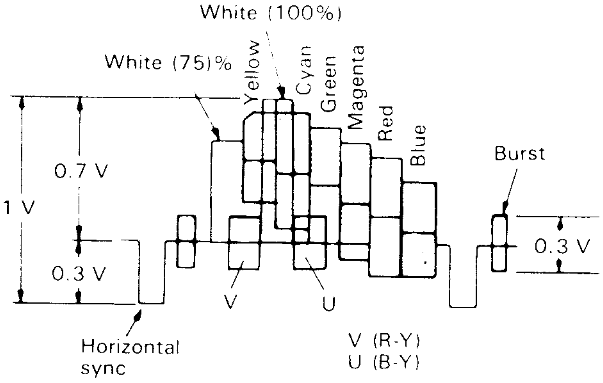

White (100%)
White (75)%
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1 V
0.3 V
0.3 V
V
U
Horizontal sync
V (R-Y)
U (B-Y)

Fig. 2-1-2 Color bar signal waveform

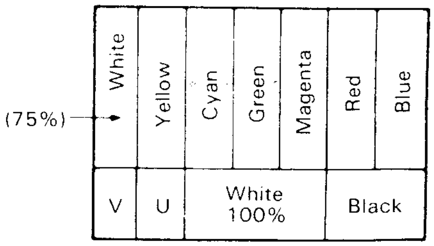

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
V
U
White 100%
Black

Fig. 2-1-3 Color bar pattern

2.2 POWER SUPPLY CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the power supply board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Output Voltage	CN-1 1 Pin	R9	POWER ON	1. Connect digital voltmeter between CN-1 pin 1 and GND. 2. Adjust R9 for 15.3 VDC.

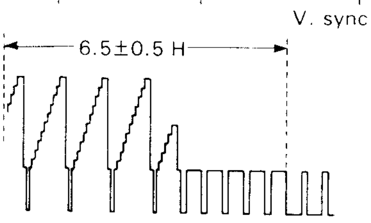
2.3 TIMER CIRCUIT

Note: Unless otherwise noted, all test points and adjustments are located on the TIMER board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Timer clock	TP2	C10	• E-E	1. Connect a frequency counter between TP2 and GND. 2. Short between GND and TP3 (TEST), then short the leads of electrolytic capacitor C8 once in order to reset IC1. 3. Adjust C10 for 2048.000±0.002 Hz (488.2808 to 488.2818 μs).

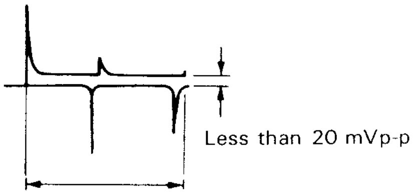
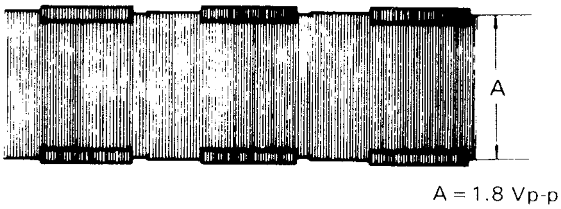
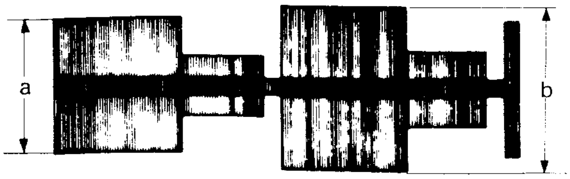
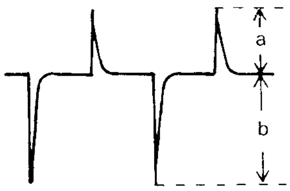
2.4 SERVO CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the MAIN board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	PB Switching Point  	VIDEO OUT	R465 (CH-1)	• PB • MH-2 Stairstep • Trigger slope (−) • SP mode **Fig. 2-4-1**	1. Connect an oscilloscope to VIDEO OUT. 2. Play back the stairstep segment of MH-2 alignment tape. 3. Trigger the oscilloscope externally (−slope) with the signal from TP411 (DRUM FF). 4. Adjust R465 to position the trigger point 6.5 ±0.5 H from V. sync.
2	Slow Tracking	Monitor	R478	• Slow PB • SP mode	1. Set the tracking control of the front panel to the center position by simultaneously pressing the + and − tracking buttons. 2. Record a color bar signal in the SP mode, then play back in the Slow mode. 3. Adjust R478 to minimize noise bars in the monitor-TV display.
3	X2 Tracking	Monitor	R414	• X2 PB • SP mode	1. Set the tracking control to the center position. 2. Play back color bar signal in the double speed play back mode. 3. Adjust R414 to minimize noise bars in the monitor TV display.
4	V. Pulse Position (V. LOCK)	Monitor	R416	• REC then PB • Still mode • Color bar	1. Record a color bar signal, then play back in the Still mode. 2. Observe the monitor and adjust R416 for minimum vertical jitter.

2.5 VIDEO CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the MAIN board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Y NR (NC BAL)  Fig. 2-5-1	TP121	R112	• E-E mode • Color bar	1. Record, then play back a color bar signal and connect an oscilloscope to TP121. 2. As indicated in the figure, adjust R112 for minimum DC step difference.
2	REC FM Level  Fig. 2-5-2	TP2 (Pre/Rec board)	R204	• REC mode • Color bar • SP mode	1. Supply a color bar input signal. 2. Connect an oscilloscope to TP3 of the PRE/REC board. 3. Adjust R204 so that the pedestal level of the vertical blanking component becomes 1.8 Vp-p. **Note:** Connect oscilloscope ground to the shield cover.
3	SP REC Color Level and Balance  Fig. 2-5-3	TP304	R321	• PB mode • MH-2 color bar • SP mode ----- • REC then PB • Color bar • SP mode	1. Connect an oscilloscope to TP304. Play back a color bar segment of the MH-2 and observe color signal level. 2. Adjust by pressing the + and − tracking buttons of the front panel for maximum level of the color waveform and make a note of the higher color level. 3. Set the tracking control of the front panel to the center position by simultaneously pressing the + and − tracking buttons. 4. Record and play back a color bar signal. If necessary, before recording, adjust R321 so that the higher level channel becomes 85% of the noted level during playback. At this time, confirm that the channel difference is within 3 dB.
4	SECAM DETECTOR  Fig. 2-5-4	TP351	L353	• SECAM color bar • E-E	1. Supply a SECAM color bar signal to video IN. 2. Connect oscilloscope to TP351. 3. Adjust L353 to obtain a:b = 3:4.

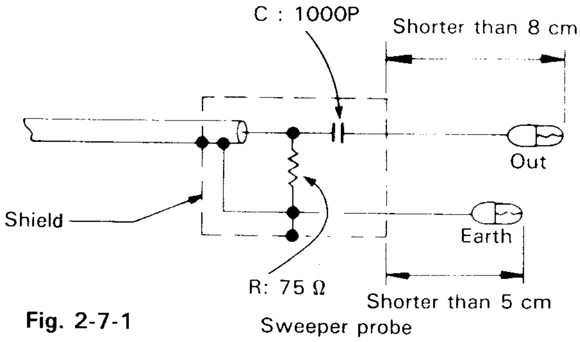
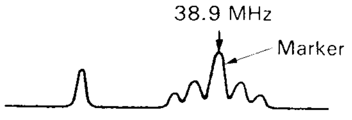
2.6 AUDIO CIRCUIT

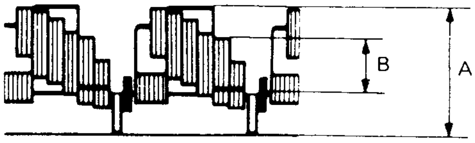
Note: Unless otherwise specified, all test points and adjustments are located on the AUDIO board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Audio Bias Level	TP31, TP32	R9	• SOURCE Select: AUX • SP mode • REC mode • No signal	1. Connect a millivoltmeter between TP31 and TP32. 2. Set for REC mode without signal. 3. Adjust R9 for 1.9 mVrms.
2	Audio PB Level	AUDIO OUT	R28	• SOURCE Select: AUX • REC then PB • SP or EP mode • −8 dBs/1 kHz	1. Connect an oscilloscope to AUDIO OUT. 2. Supply an audio signal (−8 dBs/1 kHz) to Peri connector and record together with a video signal, then play back. 3. Adjust R28 to obtain −6 dBs audio output.

2.7 TUNER/IF CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the TUNER/IF board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
	Equipment required: 1. Oscilloscope 2. IF sweep signal generator with suitable markers (PIF, SIF, etc.) 3. Sweeper probe (sweep signal supply cable) as shown below.				 C : 1000P Shorter than 8 cm Out Shield Earth R: 75 Ω Shorter than 5 cm Sweeper probe Fig. 2-7-1
1	VCO  VCO and sweep signal (beat) Fig. 2-7-2	IC1-28	T2 (VCO)	• Sweep generator out: 70 dBμ (38.9 MHz) • Tuner mode without antenna IN	1. Use a sweeper probe as shown in Fig. 2-7-1 and connect the sweep generator output to pin 2 of SAW1. Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope. Connect an oscilloscope to pin 28 of IC1 (VIDEO DET OUT) and adjust T2 to align the waveform with the frequency marker as shown in Fig. 2-7-2.
2	IF Adj.	IC1-28	IF Core in Front end	• Sweep generator out: 70 dBμ (38.9 MHz) • Tuner mode without antenna IN	1. Use the sweeper probe shown in Fig. 2-7-1 and connect the sweep generator output to TP of the front end (TUNER). 2. Connect an oscilloscope to pin 28 of IC1. Adjust IF core of the front end so that the 38.9 MHz marker becomes maximum level.
3	RF AGC	IF terminal of Front end	R21	• TV signal • Tuner mode	• **Before the following adjustments:** 1. Connect a cable to ANT IN and terminate TV OUT a 75 Ω. 2. Set a TV channel signal generator as follows. Video : 65 dBμ/75 Ω, color bar 87.5% modulation. Audio : 55 dBμ/75 Ω, 1 kHz±50 kHz deviation 1. Connect an oscilloscope to IF terminal of U/V Tuner (front end). Adjust R21 for maximum level, then again adjust R21 for −5 dB again.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
4	Color Level	JP1-12 (VIDEO OUT)	R40	• TV signal • Tuner mode • Color bar	1. Receive a color bar signal. Set the Y level for 100% reference signal and then adjust R40 for a magenta level of 48% at video out.
	 B: magenta A:B = 1:0.48 Fig. 2-7-3				

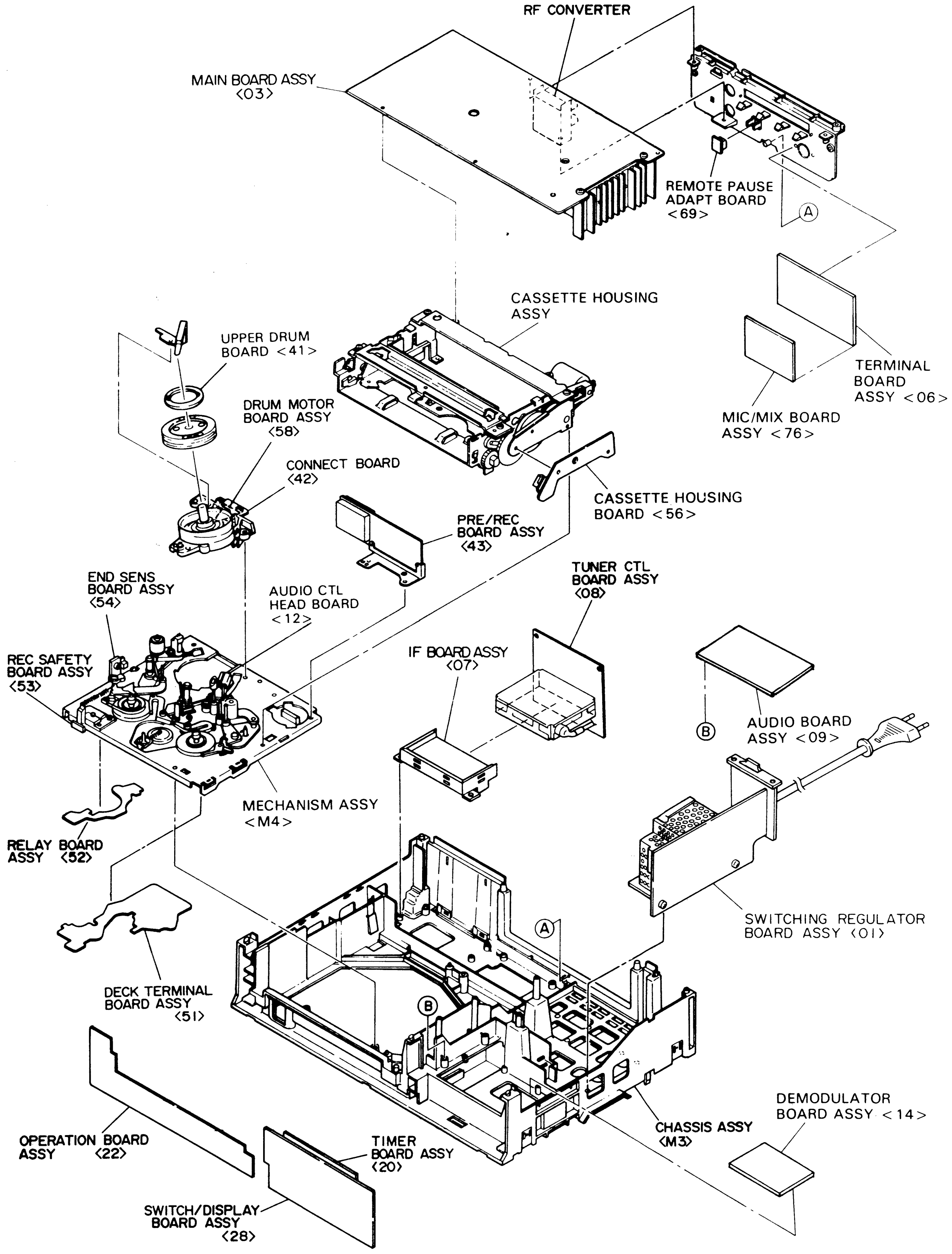
2.8 DEMODULATOR CIRCUIT

Note: Unless otherwise specified, all test points and adjustments are located on the DEMODULATOR board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	First audio detector coil	3 Pin of IC1	T4 (IF PWB)	• BILING mode • SUB: unmod. • MAIN: mod.	1. Apply Main audio modulated signal to the front end IF terminal. 2. Connect distortion meter to IC1 pin 3. 3. Adjust T4 of the IF board for minimum distortion. **Note:** Audio multiplex TV Signal generator connection is the same for the following adjustments.
2	Second audio detector coil	2 Pin of IC1	T1	• BILING mode • SUB: mod. • MAIN: unmod.	1. Connect distortion meter to IC1 pin 3. 2. Adjust T1 of the IF board for minimum distortion.
3.	Stereo separation	5 Pin of IC1	R2	• STEREO mode • R: mod. • L: unmod.	1. Set signal generator to Stereo mode, but adjust only the R channel. 2. Connect oscilloscope to IC1 pin 5. 3. Adjust R2 for minimum output.
4	Buzz	CN2 Pin 2	T8, T2 (IF PWB)	• STEREO mode • R/L unmod.	1. Connect noise meter to CN2 pin 2. 2. Adjust IF board T8 for minimum Philips pattern noise. 3. Adjust IF board T2 for minimum crosshatch noise.
5	Audio output level	CN2-2 Pin (L) CN2-4 (R)	R21 (L) R24 (R)	• STEREO mode • R mod./unmod. • L unmod./mod.	1. Set signal generator to Stereo mode. 2. Connect audio meter to CN2 pin 2. 3. Adjust R21 (L channel) for − 18.0 dBs. 4. Similarly, connect audio meter to CN2 pin 4 and adjust R24 for the R channel.

SECTION 3
CHARTS AND DIAGRAMS

3.1 CIRCUIT BOARD LOCATIONS

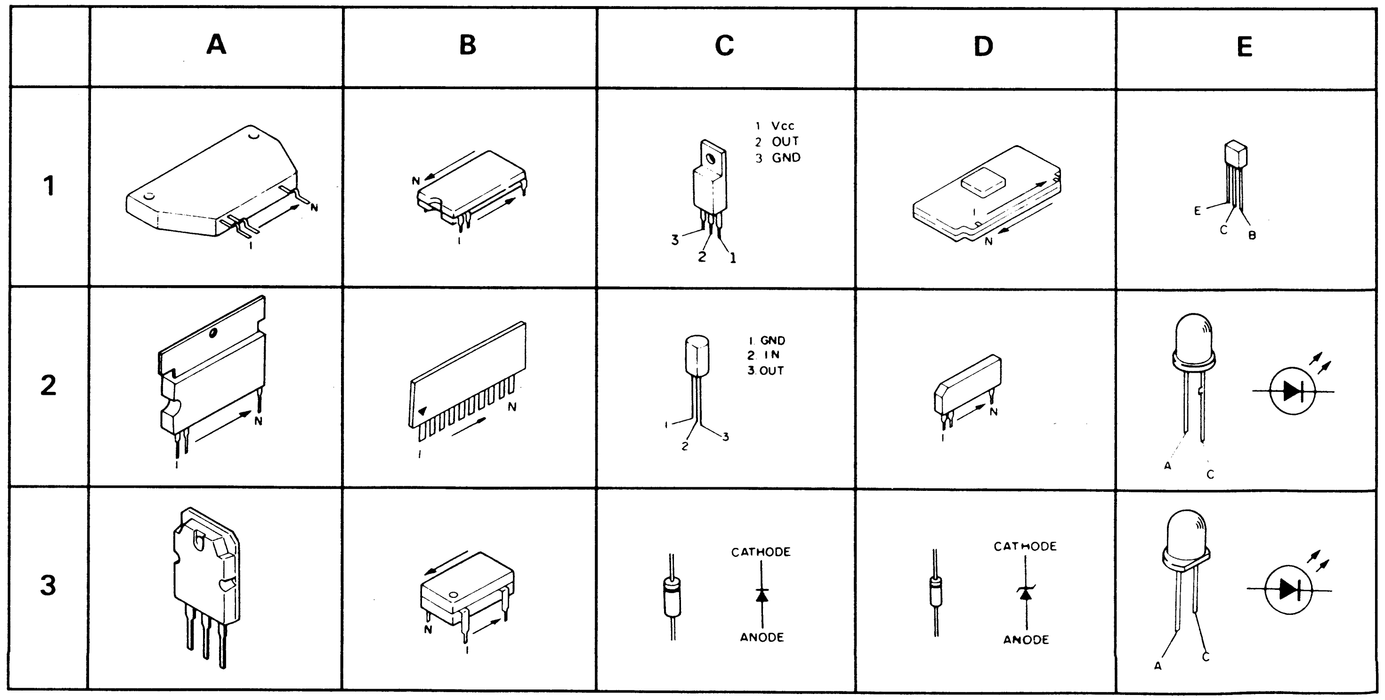

RF CONVERTER
MAIN BOARD ASSY <03>
REMOTE PAUSE ADAPT BOARD <69>
Ⓐ
CASSETTE HOUSING ASSY
UPPER DRUM BOARD <41>
DRUM MOTOR BOARD ASSY <58>
TERMINAL BOARD ASSY <06>
MIC/MIX BOARD ASSY <76>
CONNECT BOARD <42>
CASSETTE HOUSING BOARD <56>
PRE/REC BOARD ASSY <43>
END SENS BOARD ASSY <54>
AUDIO CTL HEAD BOARD <12>
TUNER CTL BOARD ASSY <08>
REC SAFETY BOARD ASSY <53>
IF BOARD ASSY <07>
Ⓑ
AUDIO BOARD ASSY <09>
MECHANISM ASSY <M4>
RELAY BOARD ASSY <52>
SWITCHING REGULATOR BOARD ASSY <01>
Ⓐ
DECK TERMINAL BOARD ASSY <51>
Ⓑ
DEMODULATOR BOARD ASSY <14>
CHASSIS ASSY <M3>
OPERATION BOARD ASSY <22>
TIMER BOARD ASSY <20>
SWITCH/DISPLAY BOARD ASSY <28>

3.2 MAIN TYPES OF ACTIVE AND PACKAGE CIRCUITS

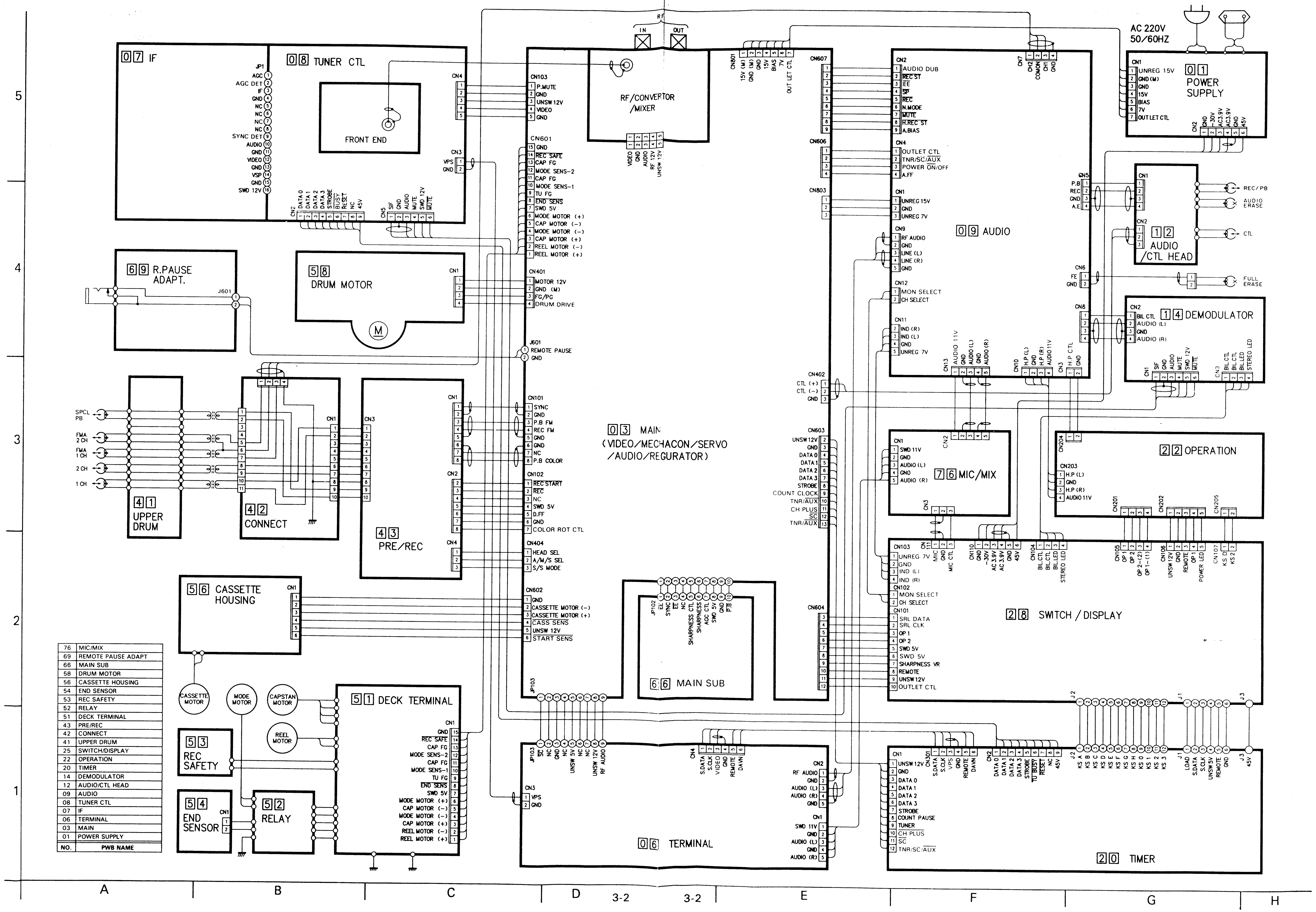
INTEGRATED CIRCUIT	
NAME	L
BA6222	2A
BA7106LS	2B
BU4069UB	1B
BX6385	2B
HA118019NT	1B
HD49722NT	3B
LA7222	
MC7805ACT	1C
MSC7112-01SS	1B
MSM16811RS	3B
M50445-398SP	1B
M50965-367SP	1B
PB20166G	1C
PB20167A-01	1C
PB20277A	1D
PU60764	
SDA5642	1B
STK5490	1A
STR10006	3A
S-8053HNB	2C
TA8405S	2D
UPD75216ACW-163	1B

TRANSISTOR	
NAME	L
DTC144ES	1E
2SD1764	
2SK658	1E

DIODE	
NAME	L
HZS39EB4TJ	3D
HZ12A2	4E
SL-R34MC3F	2E
PU1A	
SLR-55DC3F	3E
SLR-55VC3F	3E
10E6	3C

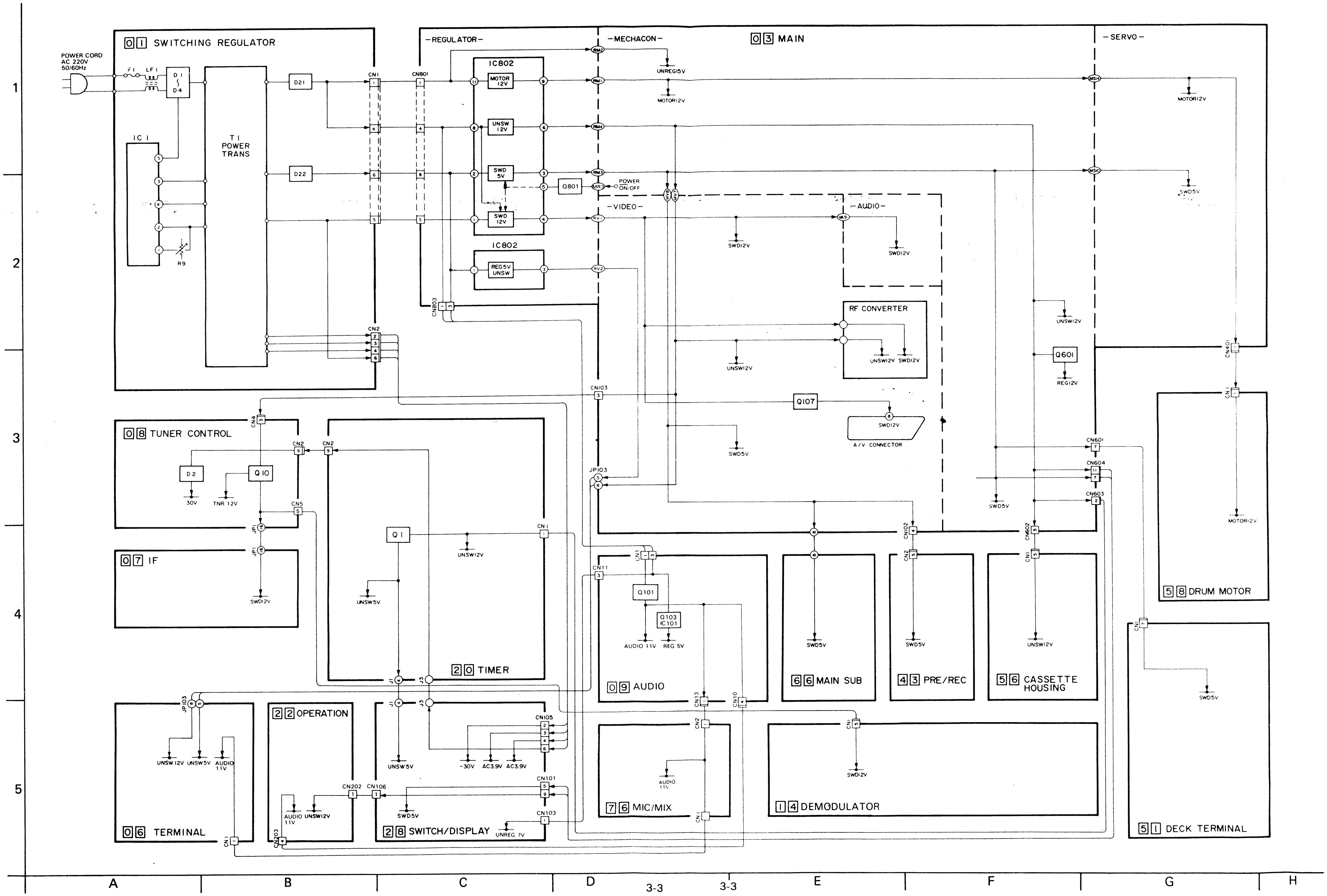

A
B
C
D
E
1
2
3
N
1
1 Vcc
2 OUT
3 GND
3
2
1
E
C
B
1 GND
2 IN
3 OUT
A
C
CATHODE
ANODE
CATHODE
ANODE

3.3 BOARD INTERCONNECTION DIAGRAM

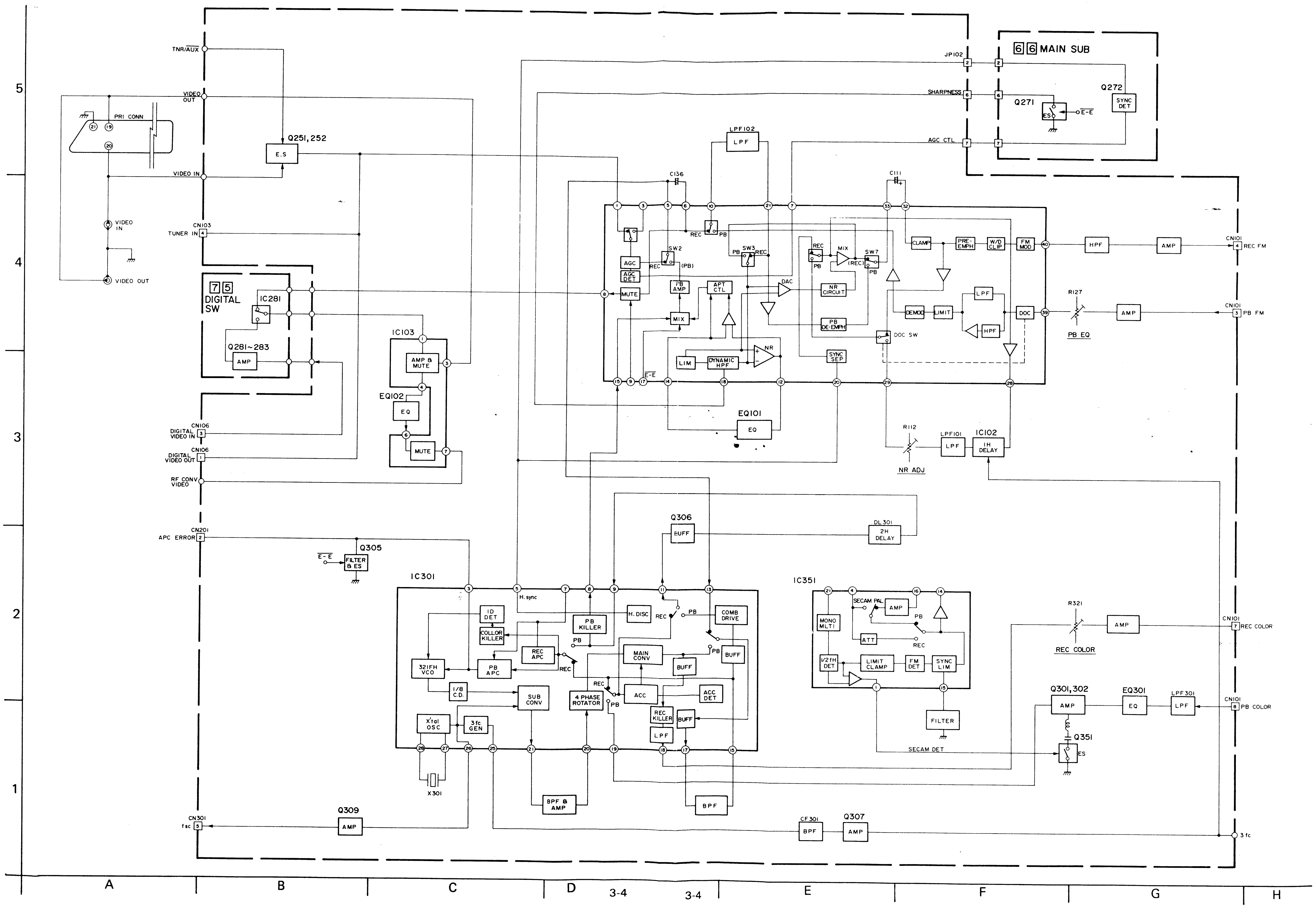

07 IF
08 TUNER CTL
FRONT END
RF
IN
OUT
RF/CONVERTOR /MIXER
01 POWER SUPPLY
AC 220V 50/60HZ
69 R.PAUSE ADAPT.
58 DRUM MOTOR
09 AUDIO
12 AUDIO /CTL HEAD
REC/PB
AUDIO ERASE
CTL
FULL ERASE
14 DEMODULATOR
41 UPPER DRUM
42 CONNECT
43 PRE/REC
03 MAIN (VIDEO/MECHACON/SERVO /AUDIO/REGURATOR)
76 MIC/MIX
22 OPERATION
56 CASSETTE HOUSING
66 MAIN SUB
28 SWITCH / DISPLAY
CASSETTE MOTOR
MODE MOTOR
CAPSTAN MOTOR
REEL MOTOR
51 DECK TERMINAL
53 REC SAFETY
54 END SENSOR
52 RELAY
06 TERMINAL
20 TIMER
SPCL PB
FMA 2 CH
FMA 1 CH
2 CH
1 CH
1
2
3
4
5
A
B
C
D
E
F
G
H

NO.	PWB NAME
76	MIC/MIX
69	REMOTE PAUSE ADAPT
66	MAIN SUB
58	DRUM MOTOR
56	CASSETTE HOUSING
54	END SENSOR
53	REC SAFETY
52	RELAY
51	DECK TERMINAL
43	PRE/REC
42	CONNECT
41	UPPER DRUM
28	SWITCH/DISPLAY
22	OPERATION
20	TIMER
14	DEMODULATOR
12	AUDIO/CTL HEAD
09	AUDIO
08	TUNER CTL
07	IF
06	TERMINAL
03	MAIN
01	POWER SUPPLY

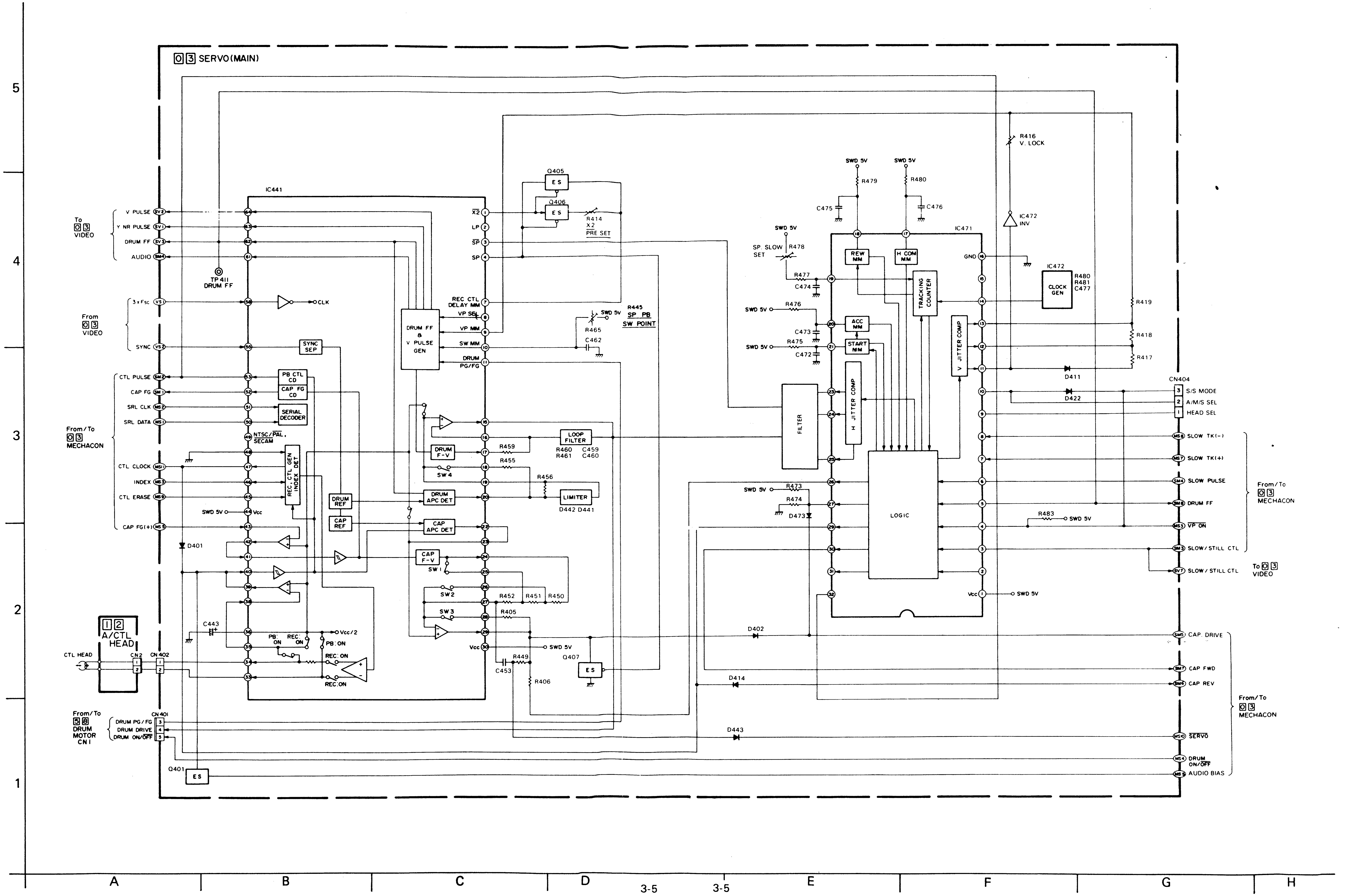
3.4 POWER SYSTEM BLOCK DIAGRAM


01 SWITCHING REGULATOR
POWER CORD
AC 220V
50/60Hz
F1
LF1
D1 ~ D4
IC1
T1 POWER TRANS
R9
D21
D22
CN1
CN2
CN801
CN803
-REGULATOR-
IC802
MOTOR 12V
UNSW 12V
SWD 5V
SWD 12V
REG5V UNSW
Q801
POWER ON/OFF
-MECHACON-
UNREG15V
MOTOR12V
03 MAIN
-SERVO-
-VIDEO-
-AUDIO-
SWD12V
SWD5V
UNSW12V
RF CONVERTER
Q601
REG12V
CN103
Q107
A/V CONNECTOR
CN401
CN601
CN604
CN603
CN602
CN102
JP103
08 TUNER CONTROL
CN4
CN5
D2
Q10
30V
TNR 12V
JP1
07 IF
20 TIMER
Q1
UNSW5V
J1
J3
CN105
-30V
AC3.9V
09 AUDIO
CN11
Q101
Q103 IC101
AUDIO 11V
REG 5V
CN13
CN10
66 MAIN SUB
43 PRE/REC
56 CASSETTE HOUSING
58 DRUM MOTOR
51 DECK TERMINAL
06 TERMINAL
UNSW12V UNSW5V AUDIO 11V
22 OPERATION
CN202
CN203
28 SWITCH/DISPLAY
CN106
CN101
UNREG 7V
76 MIC/MIX
14 DEMODULATOR
1
2
3
4
5
A
B
C
D
E
F
G
H

3.5 VIDEO BLOCK DIAGRAM

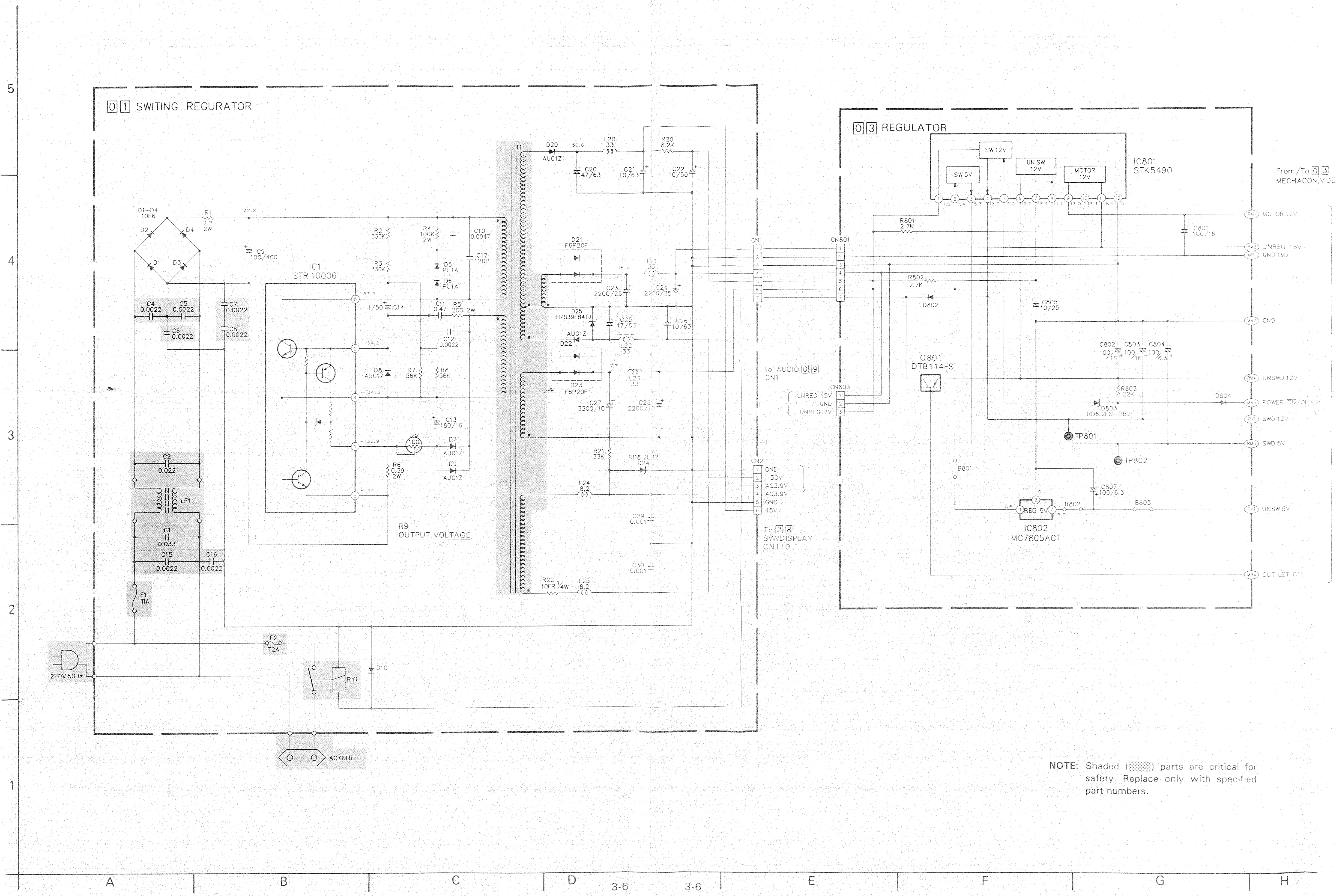

TNR/AUX
VIDEO OUT
PRI CONN
VIDEO IN
Q251, 252
E.S
VIDEO IN
VIDEO OUT
CN103
TUNER IN
75 DIGITAL SW
IC281
Q281~283
AMP
IC103
AMP & MUTE
EQ102
EQ
MUTE
CN106
DIGITAL VIDEO IN
CN106
DIGITAL VIDEO OUT
RF CONV VIDEO
CN201
APC ERROR
E-E
Q305
FILTER & ES
JP102
SHARPNESS
AGC CTL
66 MAIN SUB
Q271
Q272
SYNC DET
ES
E-E
LPF102
LPF
C136
C111
AGC
AGC DET
MUTE
SW2
REC
(PB)
PB AMP
MIX
APT CTL
SW3
PB
REC
DAC
NR CIRCUIT
PB DE-EMPH
LIM
DYNAMIC HPF
NR
E-E
SYNC SEP
MIX
(REC)
SW7
CLAMP
PRE-EMPH
W/D CLIP
FM MOD
DEMOD
LIMIT
LPF
HPF
DOC
DOC SW
EQ101
EQ
HPF
AMP
CN101
REC FM
R127
PB EQ
AMP
CN101
PB FM
R112
NR ADJ
LPF101
LPF
IC102
1H DELAY
Q306
BUFF
DL301
2H DELAY
IC301
H. sync
ID DET
COLLOR KILLER
PB KILLER
H. DISC
COMB DRIVE
REC APC
PB APC
321FH VCO
1/8 C.D.
SUB CONV
4 PHASE ROTATOR
MAIN CONV
BUFF
ACC
ACC DET
REC KILLER
BUFF
LPF
X'tal OSC
3fc GEN
X301
BPF & AMP
BPF
IC351
SECAM PAL
AMP
MONO MLTI
ATT
1/2 fH DET
LIMIT CLAMP
FM DET
SYNC LIM
FILTER
SECAM DET
R321
REC COLOR
AMP
CN101
REC COLOR
Q301, 302
AMP
EQ301
EQ
LPF301
LPF
CN101
PB COLOR
Q351
ES
CN301
fsc
Q309
AMP
CF301
BPF
Q307
AMP
3fc
1
2
3
4
5
A
B
C
D
E
F
G
H

3.6 SERVO BLOCK DIAGRAM



03 SERVO (MAIN)
IC441
IC471
IC472
To 03 VIDEO
V PULSE SV2
Y NR PULSE SV1
DRUM FF SV3
AUDIO SM4
TP411 DRUM FF
From 03 VIDEO
3×Fsc VS1
SYNC VS2
CLK
From/To 03 MECHACON
CTL PULSE SM2
CAP FG SM1
SRL CLK MS2
SRL DATA MS1
CTL CLOCK MS11
INDEX MS3
CTL ERASE MS9
CAP FG(+) MS5
SWD 5V
Vcc
D401
SYNC SEP
PB CTL CD
CAP FG CD
SERIAL DECODER
NTSC/PAL, SECAM
REC. CTL GEN INDEX DET
DRUM REF
CAP REF
DRUM FF & V PULSE GEN
X2
LP
SP
REC CTL DELAY MM
VP SEL
VP MM
SW MM
DRUM PG/FG
Q405
Q406
ES
R414 X2 PRE SET
R445 SP PB SW POINT
R465
C462
DRUM F-V
R459
R455
SW4
R456
DRUM APC DET
LOOP FILTER
R460 C459
R461 C460
LIMITER
D442 D441
CAP APC DET
CAP F-V
SW1
SW2
SW3
R452 R451 R450
R405
SWD 5V
R449
C453
R406
Q407
12 A/CTL HEAD
CTL HEAD
CN2
CN402
C443
PB: ON
REC: ON
PB: ON
REC: ON
REC: ON
Vcc/2
From/To 58 DRUM MOTOR CN1
CN401
DRUM PG/FG
DRUM DRIVE
DRUM ON/OFF
Q401
R416 V. LOCK
IC472 INV
SWD 5V
R479
R480
C475
C476
SP. SLOW SET
R478
R477
C474
R476
C473
R475
C472
REW MM
H COM MM
ACC MM
START MM
TRACKING COUNTER
V JITTER COMP
H JITTER COMP
FILTER
LOGIC
GND
CLOCK GEN
R480 R481 C477
R419
R418
R417
D411
D422
CN404
S/S MODE
A/M/S SEL
HEAD SEL
R473
R474
D473
R483
SWD 5V
D402
D414
D443
SLOW TK(−) MS8
SLOW TK(+) MS7
SLOW PULSE SM4
DRUM FF SM8
VP ON MS3
SLOW/STILL CTL SM3
SLOW/STILL CTL SV7
From/To 03 MECHACON
To 03 VIDEO
CAP. DRIVE SM5
CAP FWD SM7
CAP REV SM6
SERVO MS10
DRUM ON/OFF MS4
AUDIO BIAS MS5
From/To 03 MECHACON
A
B
C
D
E
F
G
H
1
2
3
4
5

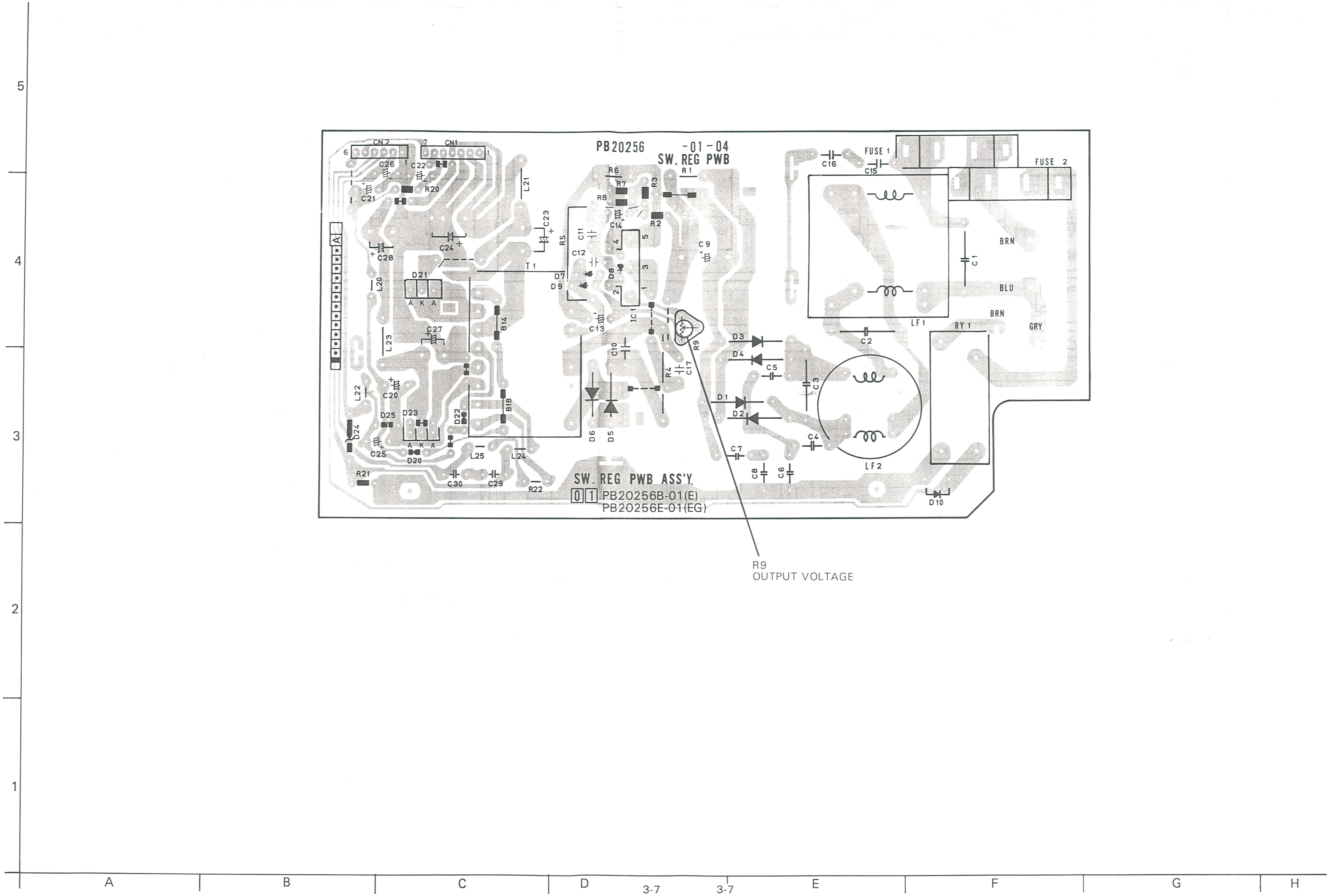
3.7 POWER SUPPLY SCHEMATIC DIAGRAMS



0 1 SWITING REGURATOR
D1~D4
10E6
D2
D4
D1
D3
R1
2.2
2W
132.2
C9
100/400
C4
0.0022
C5
0.0022
C6
0.0022
C7
0.0022
C8
0.0022
C2
0.022
LF1
C1
0.033
C15
0.0022
C16
0.0022
F1
TIA
IC1
STR 10006
187.5
-134.2
-134.3
-139.9
-134.1
R2
330K
R3
330K
R4
100K
2W
C10
0.0047
C17
120P
D5
PU1A
D6
PU1A
1/50
C14
C11
0.47
R5
200 2W
C12
0.0022
D8
AU01Z
R7
56K
R8
56K
C13
180/16
R9
100
D7
AU01Z
D9
AU01Z
R6
0.39
2W
R9
OUTPUT VOLTAGE
T1
D20
AU01Z
50.6
L20
33
R20
8.2K
C20
47/63
C21
10/63
C22
10/50
D21
F6P20F
16.3
L21
33
C23
2200/25
C24
2200/25
D25
HZS39EB4TJ
C25
47/63
C26
10/63
AU01Z
D22
L22
33
7.7
L23
33
D23
F6P20F
C27
3300/10
C28
2200/10
R21
33K
RD8.2EB2
D24
L24
8.2
C29
0.001
C30
0.001
R22
10FR 1/4W
L25
8.2
CN1
To AUDIO 0 9
CN1
CN2
GND
-30V
AC3.9V
AC3.9V
GND
45V
To 2 8
SW/DISPLAY
CN110
220V 50Hz
F2
T2A
RY1
D10
AC OUTLET
0 3 REGULATOR
SW 12V
SW 5V
UN SW
12V
MOTOR
12V
IC801
STK5490
17.8
7.4
5.3
12.0
0.2
12.2
13.4
11.1
12.0
13.1
16.1
0
From/To 0 3
MECHACON, VIDEO
R801
2.7K
C801
100/16
CN801
R802
2.7K
D802
C805
10/25
RM1 MOTOR 12V
RM2 UNREG 15V
MR1 GND (M)
MR2 GND
C802
100/16
C803
100/16
C804
100/6.3
Q801
DTB114ES
RM4 UNSWD 12V
CN803
UNREG 15V
GND
UNREG 7V
R803
22K
D803
RD6.2ES-TIB2
D804
MR3 POWER ON/OFF
RV1 SWD 12V
TP801
RM3 SWD 5V
TP802
B801
C807
100/6.3
7.4
REG 5V
5.0
B802
B803
RV2 UNSW 5V
IC802
MC7805ACT
MR4 OUT LET CTL
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE: Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

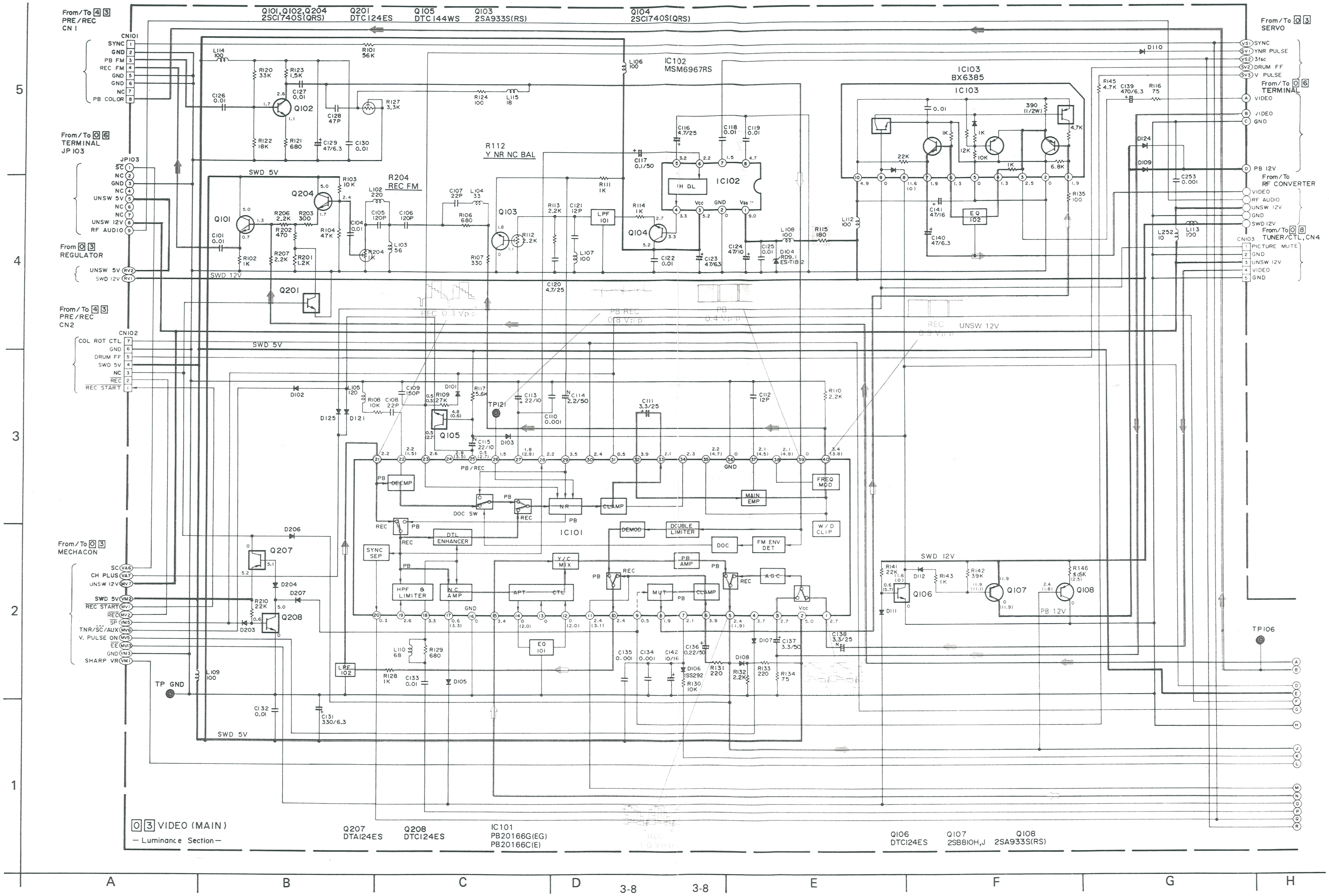
3.8 SWITCHING REGULATOR CIRCUIT BOARD

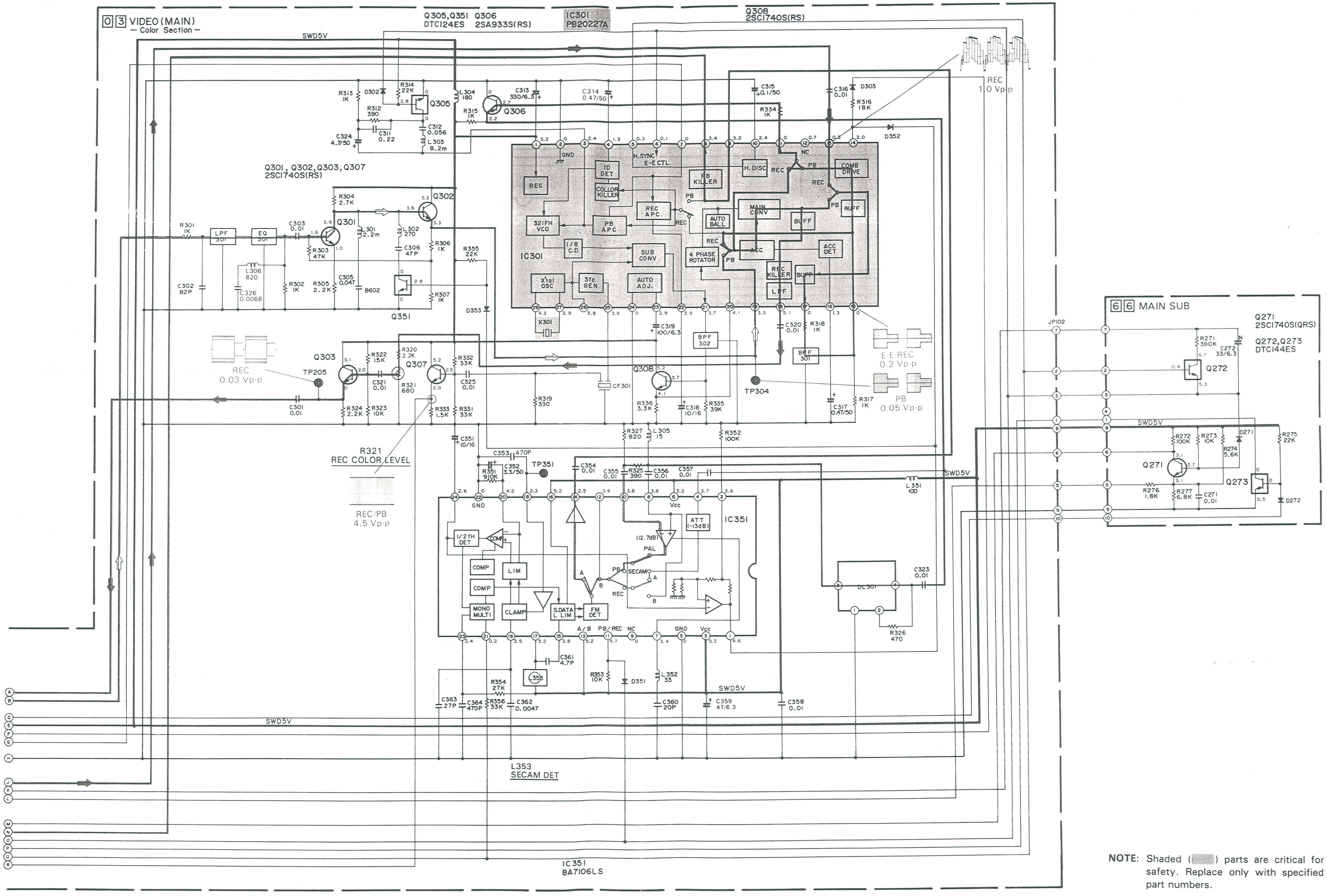

PB20256 -01-04
SW. REG PWB
CN2
CN1
6
7
1
C26
C22
C21
R20
C23
L21
R6
R7
R3
R8
R1
R2
C14
C11
R5
C9
C12
C16
FUSE 1
C15
FUSE 2
C24
C28
T1
D7
D9
D8
IC1
R9
C13
C10
C17
R4
D21
A K A
L20
L23
C27
B14
B18
C20
L22
D25
D23
D22
D24
C25
D20
L25
L24
R21
C30
C29
R22
D6
D5
D3
D4
C5
C3
D1
D2
C4
C7
C8
C6
C1
C2
LF1
LF2
RY1
BRN
BLU
GRY
D10
A
SW. REG PWB ASS'Y.
01 PB20256B-01(E)
PB20256E-01(EG)
5
4
3
2
1
A
B
C
D
E
F
G
H

R9
OUTPUT VOLTAGE

3.9 VIDEO SCHEMATIC DIAGRAM

NOTE: Shaded (▨) parts are critical for safety. Replace only with specified part numbers.


Q101,Q102,Q204 2SC1740S(QRS)
Q201 DTC124ES
Q105 DTC144WS
Q103 2SA933S(RS)
Q104 2SC1740S(QRS)
From/To 4 3 PRE/REC CN1
CN101
SYNC
GND
PB FM
REC FM
GND
GND
NC
PB COLOR
From/To 0 6 TERMINAL JP103
JP103
SC
NC
GND
NC
UNSW 5V
NC
NC
UNSW 12V
RF AUDIO
From 0 3 REGULATOR
UNSW 5V
SWD 12V
From/To 4 3 PRE/REC CN2
CN102
COL ROT CTL
GND
DRUM FF
SWD 5V
NC
REC
REC START
From/To 0 3 MECHACON
SC
CH PLUS
UNSW 12V
SWD 5V
REC START
REC
SP
TNR/SC/AUX
V. PULSE ON
EE
GND
SHARP VR
TP GND
SWD 5V
SWD 12V
R204 REC FM
R112 Y NR NC BAL
IC102 MSM6967RS
1H DL
IC103 BX6385
EQ 102
LPF 101
From/To 0 3 SERVO
SYNC
YNR PULSE
3fsc
DRUM FF
V PULSE
From/To 0 6 TERMINAL
VIDEO
VIDEO
GND
PB 12V
From/To RF CONVERTER
VIDEO
RF AUDIO
UNSW 12V
GND
SWD 12V
From/To 0 8 TUNER/CTL,CN4
CN103
PICTURE MUTE
GND
UNSW 12V
VIDEO
GND
REC 0.3 Vp-p
PB REC 0.3 Vp-p
PB 0.4 Vp-p
REC 0.5 Vp-p
UNSW 12V
IC101
DEEMP
PB/REC
DOC SW
NR
CLAMP
MAIN EMP
FREQ MOD
W/D CLIP
DTL ENHANCER
DEMOD
DOUBLE LIMITER
DOC
FM ENV DET
SYNC SEP
Y/C MIX
PB AMP
HPF & LIMITER
N.C AMP
APT
CTL
MUT
CLAMP
AGC
EQ 101
LPF 102
Q207
Q208
Q106
Q107
Q108
TP121
TP106
REC 1.0 Vp-p
0 3 VIDEO (MAIN)
— Luminance Section —
Q207 DTA124ES
Q208 DTC124ES
IC101 PB20166G(EG) PB20166C(E)
Q106 DTC124ES
Q107 2SB810H,J
Q108 2SA933S(RS)
A
B
C
D
E
F
G
H
1
2
3
4
5



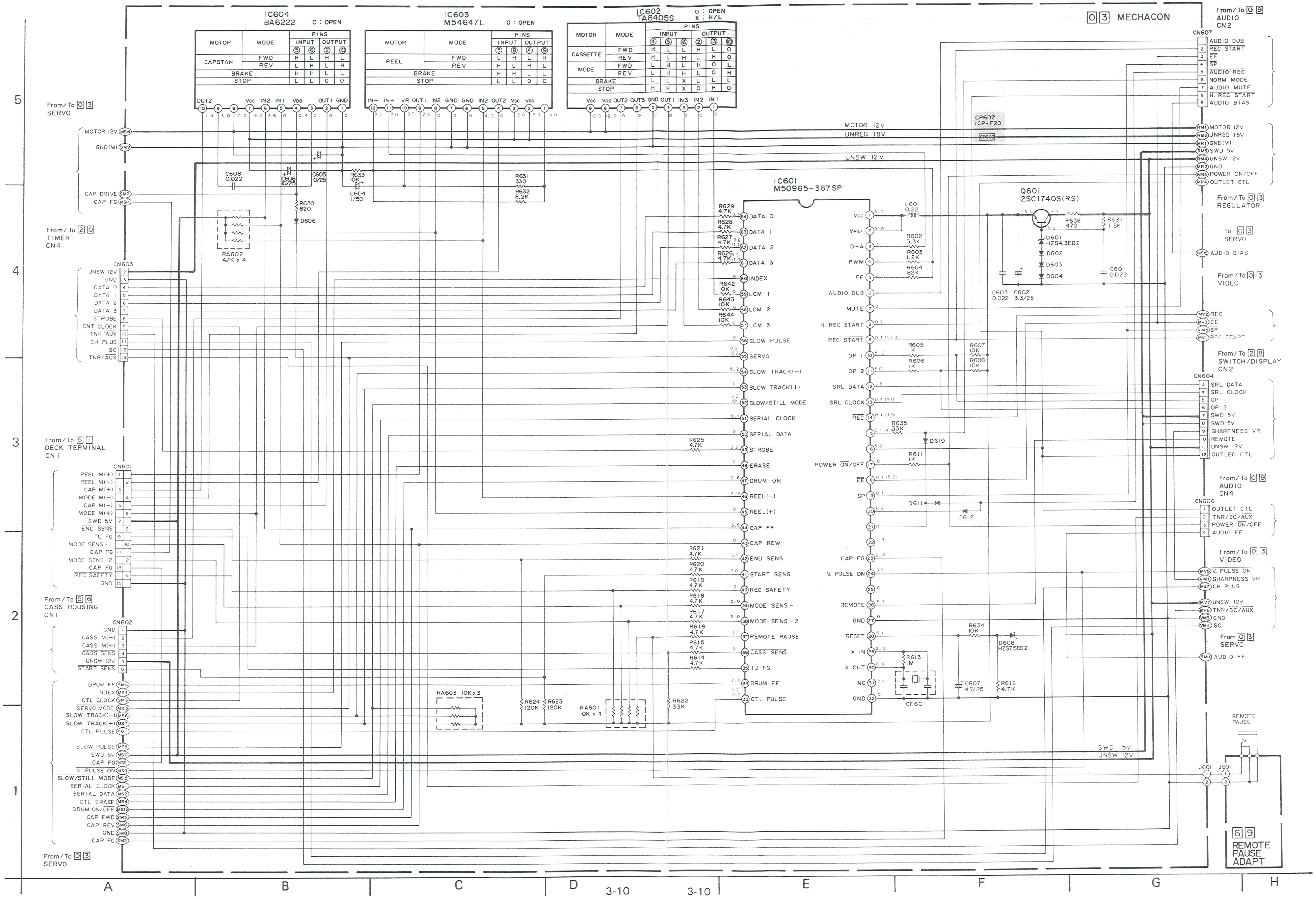
03 VIDEO (MAIN)
— Color Section —
SWD5V
Q305,Q351 DTC124ES
Q306 2SA933S(RS)
IC301 PB20227A
Q308 2SC1740S(RS)
REC 1.0 Vp-p
R313 1K
D302
R314 22K
Q305
L304 180
C313 330/6.3
Q306
C314 0.47/50
C315 0.1/50
C316 0.01
D303
R316 18K
R312 390
R315 1K
R334 1K
C324 4.7/50
C311 0.22
C312 0.056
L303 8.2m
D352
Q301,Q302,Q303,Q307 2SC1740S(RS)
R304 2.7K
Q302
R301 1K
LPF 301
EQ 301
C303 0.01
Q301
L301 2.2m
L302 270
C306 47P
R306 1K
R355 22K
R303 47K
L306 820
C302 82P
C326 0.0068
R302 1K
R305 2.2K
C305 0.047
B602
R307 1K
Q351
D353
GND
H.SYNC
E-E CTL
REG
ID DET
COLLOR KILLER
PB KILLER
H. DISC
REC
PB
NC
COMB DRIVE
REC APC
AUTO BALL
MAIN CONV
BUFF
321FH VCO
PB APC
1/8 C.D.
SUB CONV
4 PHASE ROTATOR
ACC
ACC DET
REC KILLER
LPF
IC301
X'tal OSC
3fc GEN
AUTO ADJ.
X301
C319 100/6.3
BPF 302
C320 0.01
R318 1K
BPF 301
E-E REC 0.2 Vp-p
REC 0.03 Vp-p
TP205
Q303
R322 15K
R320 2.2K
Q307
R332 33K
C321 0.01
R321 680
C325 0.01
Q308
TP304
PB 0.05 Vp-p
C301 0.01
R324 2.2K
R323 10K
R333 1.5K
R331 33K
R319 330
CF301
R336 3.3K
C318 10/16
R335 39K
C317 0.47/50
R317 1K
R321 REC COLOR LEVEL
REC/PB 4.5 Vp-p
C351 10/16
R327 820
L305 15
R352 100K
C353 470P
R351 910K
C352 3.3/50
TP351
C354 0.01
C355 0.01
R325 390
C356 0.01
C357 0.01
L351 100
SWD5V
Vcc
ATT (-13dB)
IC351
1/2fH DET
COMP
LIM
(12.7dB)
PAL
SECAM
COMP
CLAMP
MONO MULTI
S.DATA L. LIM
FM DET
A/B
PB/REC
NC
GND
Vcc
DL301
C323 0.01
R326 470
C361 4.7P
R354 27K
L353
R353 10K
D351
L352 33
SWD5V
C363 27P
C364 470P
R356 33K
C362 0.0047
C360 20P
C359 47/6.3
C358 0.01
L353 SECAM DET
IC351 BA7106LS
JP102
66 MAIN SUB
Q271 2SC1740S(QRS)
Q272,Q273 DTC144ES
R271 390K
C272 33/6.3
Q272
SWD5V
R272 100K
R273 10K
D271
R274 5.6K
R275 22K
Q271
Q273
R276 1.8K
R277 6.8K
C271 0.01
D272
A
B
D
E
F
G
H
J
K
L
M
N
O
P
Q
R

NOTE: Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

I J K L M N O P

3.10 MECHANISM CONTROL AND REMOTE PAUSE ADAPT SCHEMATIC DIAGRAMS

NOTE: Shaded (▨) parts are critical for safety. Replace only with specified part numbers.



03 MECHACON
IC604 BA6222 O : OPEN
IC603 M54647L O : OPEN
IC602 TA8405S O : OPEN X : H/L
IC601 M50965-367SP
Q601 2SC1740S(RS)
CP602 ICP-F20
From/To 03 SERVO
MOTOR 12V
GND(M)
CAP DRIVE
CAP FG
From/To 20 TIMER CN4
CN603
UNSW 12V
GND
DATA 0
DATA 1
DATA 2
DATA 3
STROBE
CNT CLOCK
TNR/AUX
CH PLUS
SC
TNR/AUX
From/To 51 DECK TERMINAL CN1
CN601
REEL M(+)
REEL M(−)
CAP M(+)
MODE M(−)
CAP M(−)
MODE M(+)
SWD 5V
END SENS
TU FG
MODE SENS-1
CAP FG
MODE SENS-2
CAP FG
REC SAFETY
GND
From/To 56 CASS HOUSING CN1
CN602
GND
CASS M(−)
CASS M(+)
CASS SENS
UNSW 12V
START SENS
DRUM FF
INDEX
CTL CLOCK
SERVO MODE
SLOW TRACK(−)
SLOW TRACK(+)
CTL PULSE
SLOW PULSE
SWD 5V
CAP FG
V. PULSE ON
SLOW/STILL MODE
SERIAL CLOCK
SERIAL DATA
CTL ERASE
DRUM ON/OFF
CAP FWD
CAP REV
GND
CAP FG
From/To 03 SERVO
From/To 09 AUDIO CN2
CN607
AUDIO DUB
REC START
EE
SP
AUDIO REC
NORM MODE
AUDIO MUTE
H. REC START
AUDIO BIAS
MOTOR 12V
UNREG 15V
GND(M)
SWD 5V
UNSW 12V
GND
POWER ON/OFF
OUTLET CTL
From/To 03 REGULATOR
To 03 SERVO
AUDIO BIAS
From/To 03 VIDEO
REC
EE
SP
REC START
From/To 28 SWITCH/DISPLAY CN2
CN604
SRL DATA
SRL CLOCK
OP 1
OP 2
SWD 5V
SWD 5V
SHARPNESS VR
REMOTE
UNSW 12V
OUTLEC CTL
From/To 09 AUDIO CN4
CN606
OUTLET CTL
TNR/SC/AUX
POWER ON/OFF
AUDIO FF
From/To 03 VIDEO
V. PULSE ON
SHARPNESS VR
CH PLUS
UNSW 12V
TNR/SC/AUX
GND
SC
From 03 SERVO
AUDIO FF
MOTOR 12V
UNREG 18V
UNSW 12V
SWD 5V
UNSW 12V
DATA 0
DATA 1
DATA 2
DATA 3
INDEX
LCM 1
LCM 2
LCM 3
SLOW PULSE
SERVO
SLOW TRACK(−)
SLOW TRACK(+)
SLOW/STILL MODE
SERIAL CLOCK
SERIAL DATA
STROBE
ERASE
DRUM ON
REEL(−)
REEL(+)
CAP FF
CAP REW
END SENS
START SENS
REC SAFETY
MODE SENS-1
MODE SENS-2
REMOTE PAUSE
CASS SENS
TU FG
DRUM FF
CTL PULSE
Vcc
VREF
D-A
PWM
FF
AUDIO DUB
MUTE
H. REC START
REC START
OP 1
OP 2
SRL DATA
SRL CLOCK
REC
POWER ON/OFF
EE
SP
CAP FG
V. PULSE ON
REMOTE
GND
RESET
X IN
X OUT
NC
GND
C608 0.022
C606 10/25
C605 10/25
R633 10K
C604 1/50
R631 330
R632 8.2K
R630 820
D606
RA602 4.7K x 4
R629 4.7K
R628 4.7K
R627 4.7K
R626 4.7K
R642 10K
R643 10K
R644 10K
R625 4.7K
R621 4.7K
R620 4.7K
R619 4.7K
R618 4.7K
R617 4.7K
R616 4.7K
R615 4.7K
R614 4.7K
R624 120K
R623 120K
RA601 10K x 4
R622 33K
RA603 10K x 3
L601 0.22
R602 3.3K
R603 1.2K
R604 82K
R605 1K
R606 1K
R607 10K
R608 10K
R635 33K
D610
R611 1K
D611
D612
R634 10K
D608 HZS7.5EB2
R613 1M
CF601
C607 4.7/25
R612 4.7K
R638 470
R637 1.5K
D601 HZS4.3EB2
D602
D603
D604
C601 0.022
C603 0.022
C602 3.3/25
REMOTE PAUSE
J601
J601
69 REMOTE PAUSE ADAPT
5
4
3
2
1
A
B
C
D
E
F
G
H

IC604 BA6222 O : OPEN

MOTOR	MODE	PINS INPUT ⑤	PINS INPUT ⑥	PINS OUTPUT ②	PINS OUTPUT ⑩
CAPSTAN	FWD	H	L	H	L
	REV	L	H	L	H
BRAKE		H	H	L	L
STOP		L	L	O	O

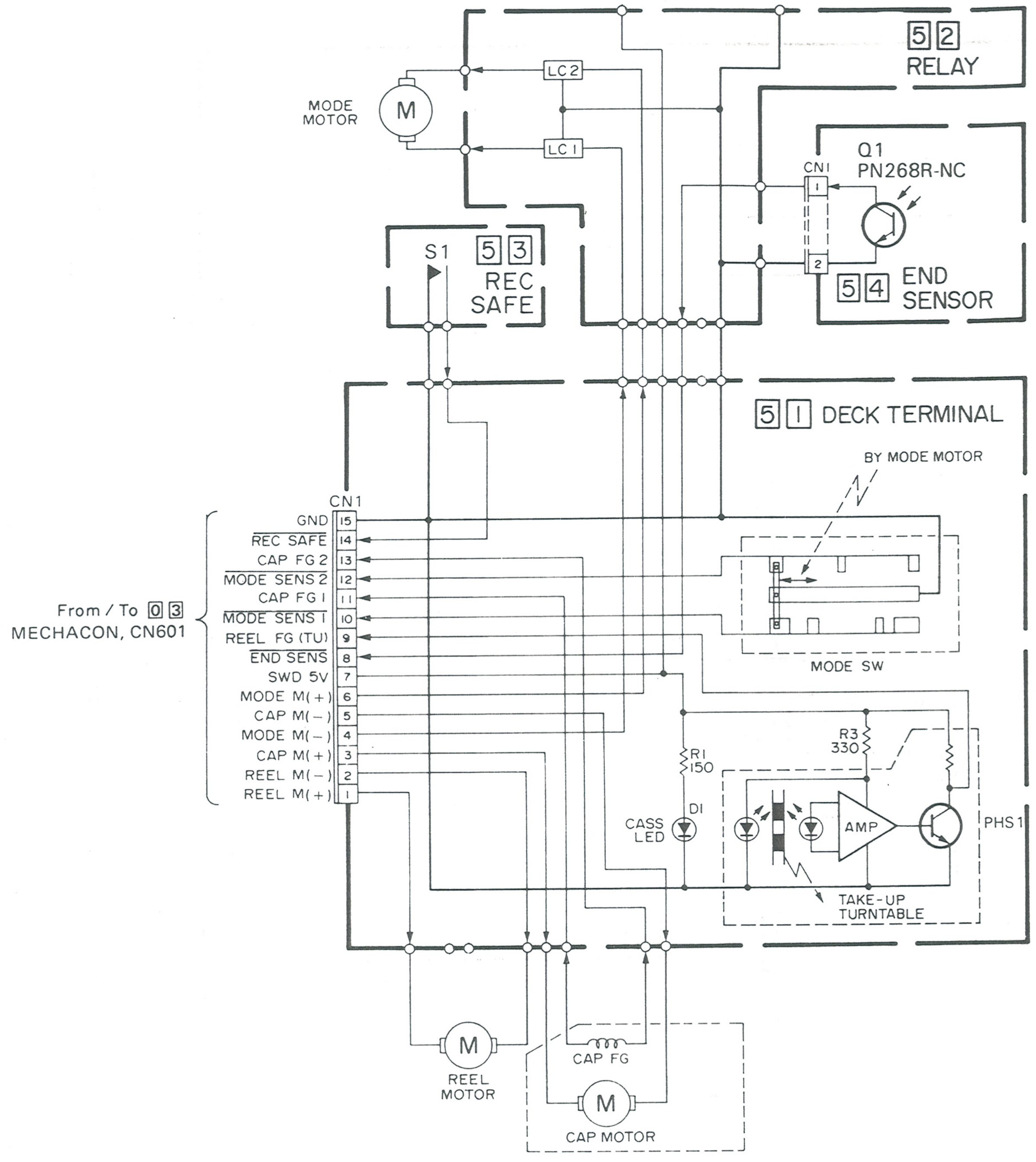
IC603 M54647L O : OPEN

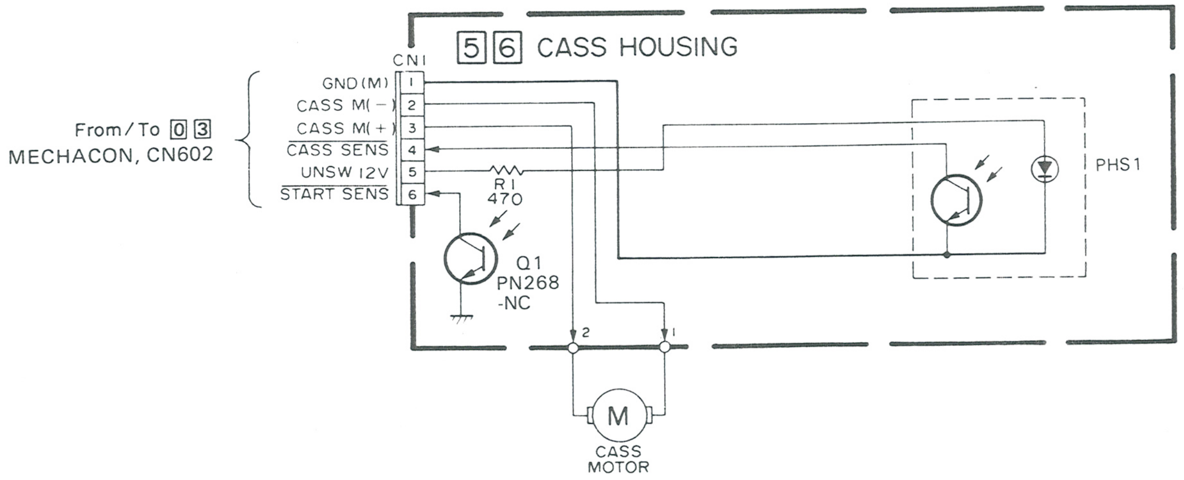
MOTOR	MODE	PINS INPUT ⑤	PINS INPUT ⑧	PINS OUTPUT ④	PINS OUTPUT ⑨
REEL	FWD	L	H	L	H
	REV	H	L	H	L
BRAKE		H	H	L	L
STOP		L	L	O	O

IC602 TA8405S O : OPEN X : H/L

MOTOR	MODE	PINS INPUT ④	PINS INPUT ⑤	PINS INPUT ⑥	PINS OUTPUT ②	PINS OUTPUT ③	PINS OUTPUT ⑩
CASSETTE	FWD	H	L	L	H	L	O
	REV	H	L	H	L	H	O
MODE	FWD	L	H	L	H	O	L
	REV	L	H	H	L	O	H
BRAKE		L	L	X	L	L	L
STOP		H	H	X	O	H	O

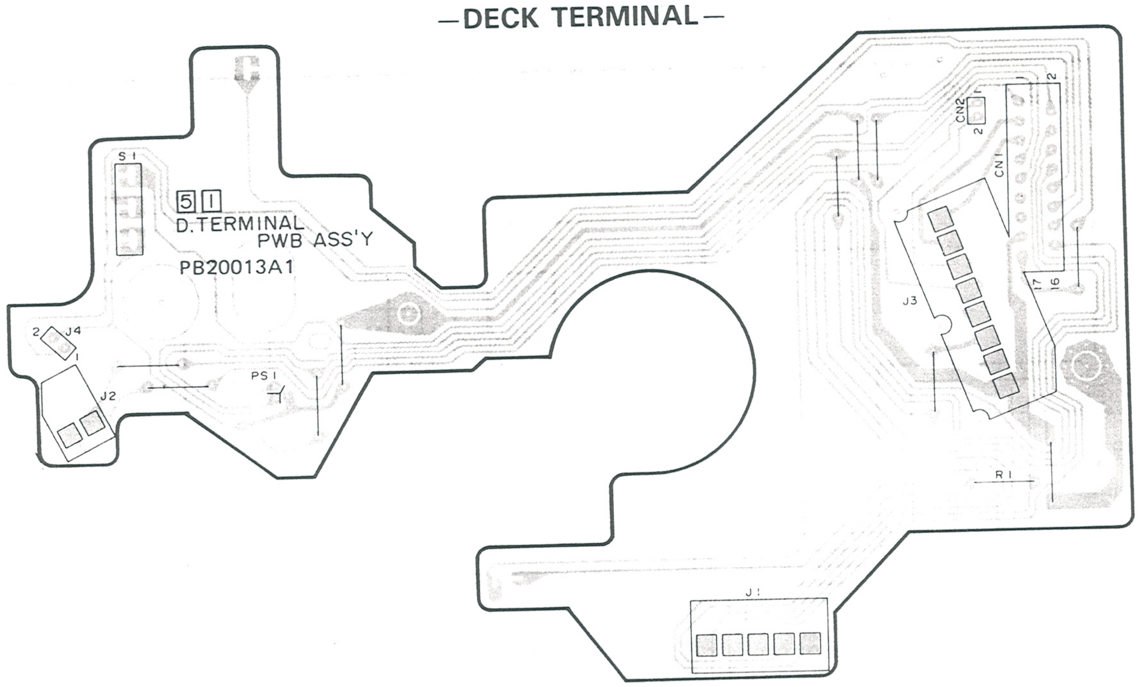
3.11 DECK TERMINAL SCHEMATIC DIAGRAMS


52 RELAY
MODE MOTOR
M
LC2
LC1
Q1
PN268R-NC
CN1
1
2
54 END SENSOR
S1 53
REC SAFE
51 DECK TERMINAL
BY MODE MOTOR
CN1
GND 15
REC SAFE 14
CAP FG2 13
MODE SENS 2 12
CAP FG1 11
MODE SENS 1 10
REEL FG (TU) 9
END SENS 8
SWD 5V 7
MODE M(+) 6
CAP M(−) 5
MODE M(−) 4
CAP M(+) 3
REEL M(−) 2
REEL M(+) 1
From / To 03
MECHACON, CN601
MODE SW
R1
150
R3
330
CASS LED
D1
AMP
PHS1
TAKE-UP TURNTABLE
M
REEL MOTOR
CAP FG
M
CAP MOTOR

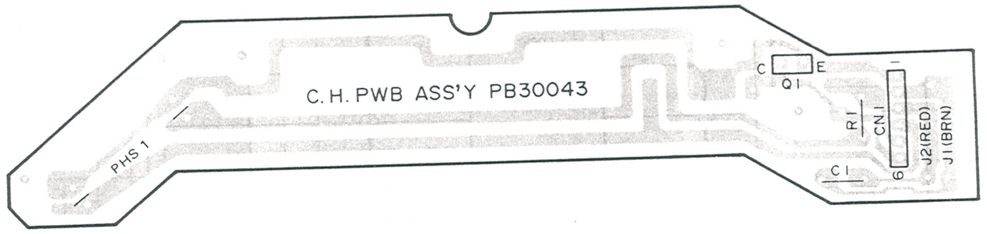

56 CASS HOUSING
CN1
GND(M) 1
CASS M(−) 2
CASS M(+) 3
CASS SENS 4
UNSW 12V 5
START SENS 6
From / To 03
MECHACON, CN602
R1
470
Q1
PN268
-NC
PHS1
2
1
M
CASS MOTOR

3.12 DECK TERMINAL CIRCUIT BOARDS

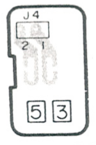
—DECK TERMINAL—


51
D.TERMINAL
PWB ASS'Y
PB20013A1
S1
J4
J2
PS1
CN2
CN1
J3
R1
J1

—CASSETTE HOUSING—

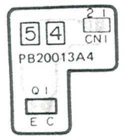

C.H. PWB ASS'Y PB30043
PHS1
C
E
Q1
R1
CN1
6
J2(RED)
J1(BRN)
C1

—REC SAFETY—



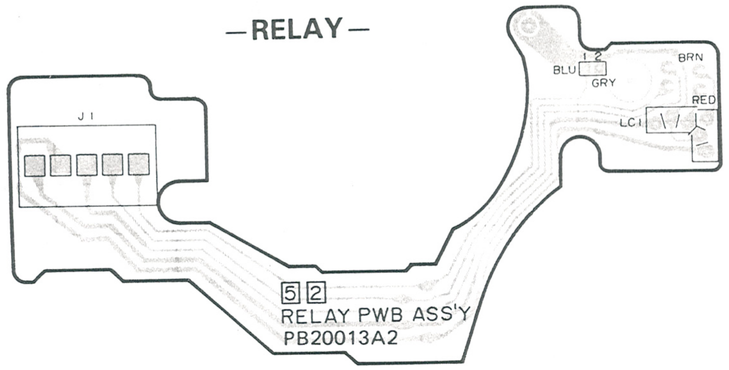
PB20013A3

—END SENSOR—

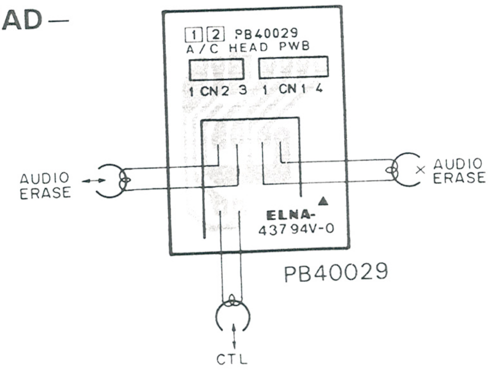

54
2 1
CN1
PB20013A4
Q1
E C

PB20013A4

—RELAY—

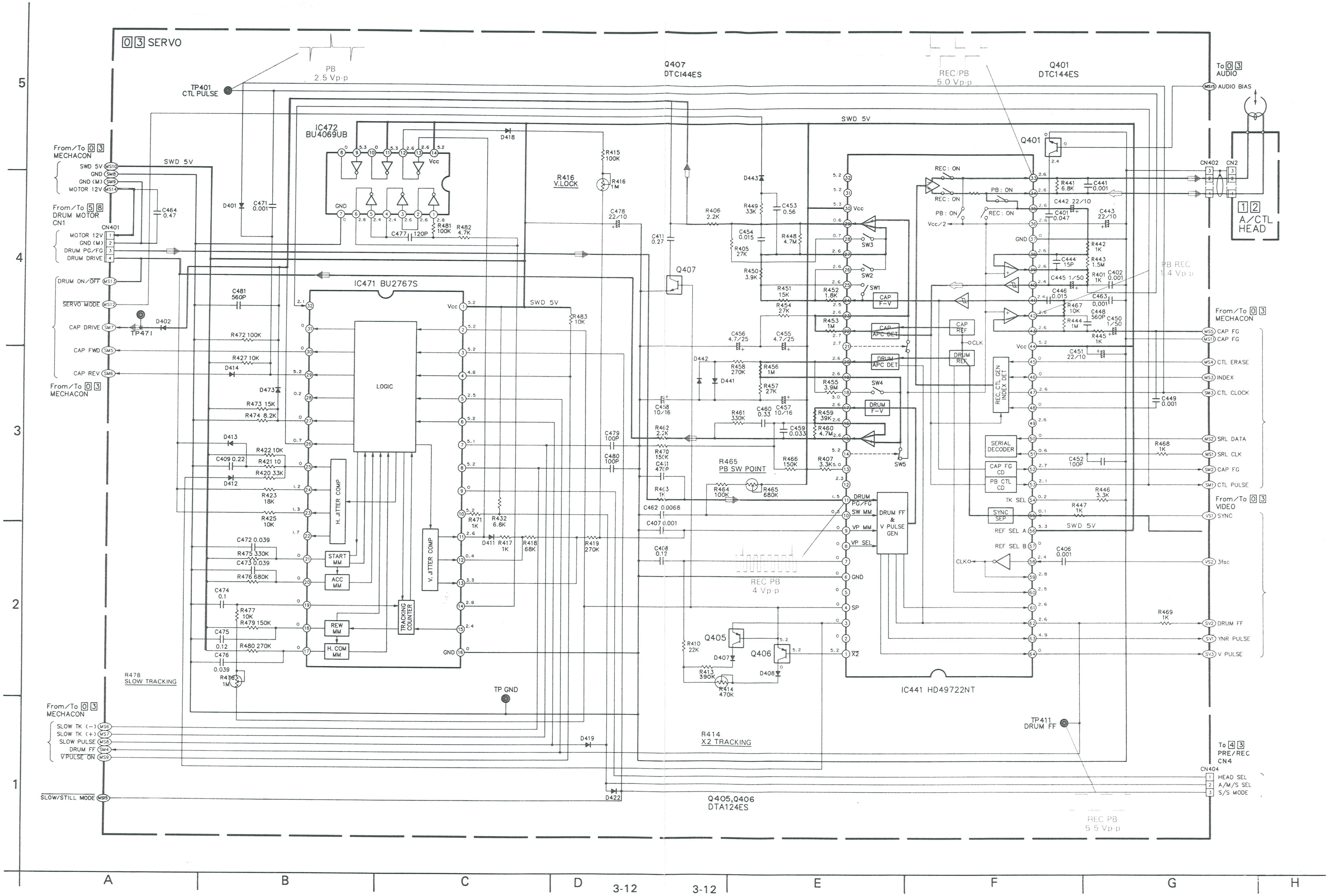

J1
BLU
1 2
GRY
BRN
RED
LC1
52
RELAY PWB ASS'Y
PB20013A2

—AUDIO/CTL HEAD—


12 PB40029
A/C HEAD PWB
1 CN2 3
1 CN1 4
AUDIO
ERASE
AUDIO
ERASE
ELNA-
43794V-0
CTL

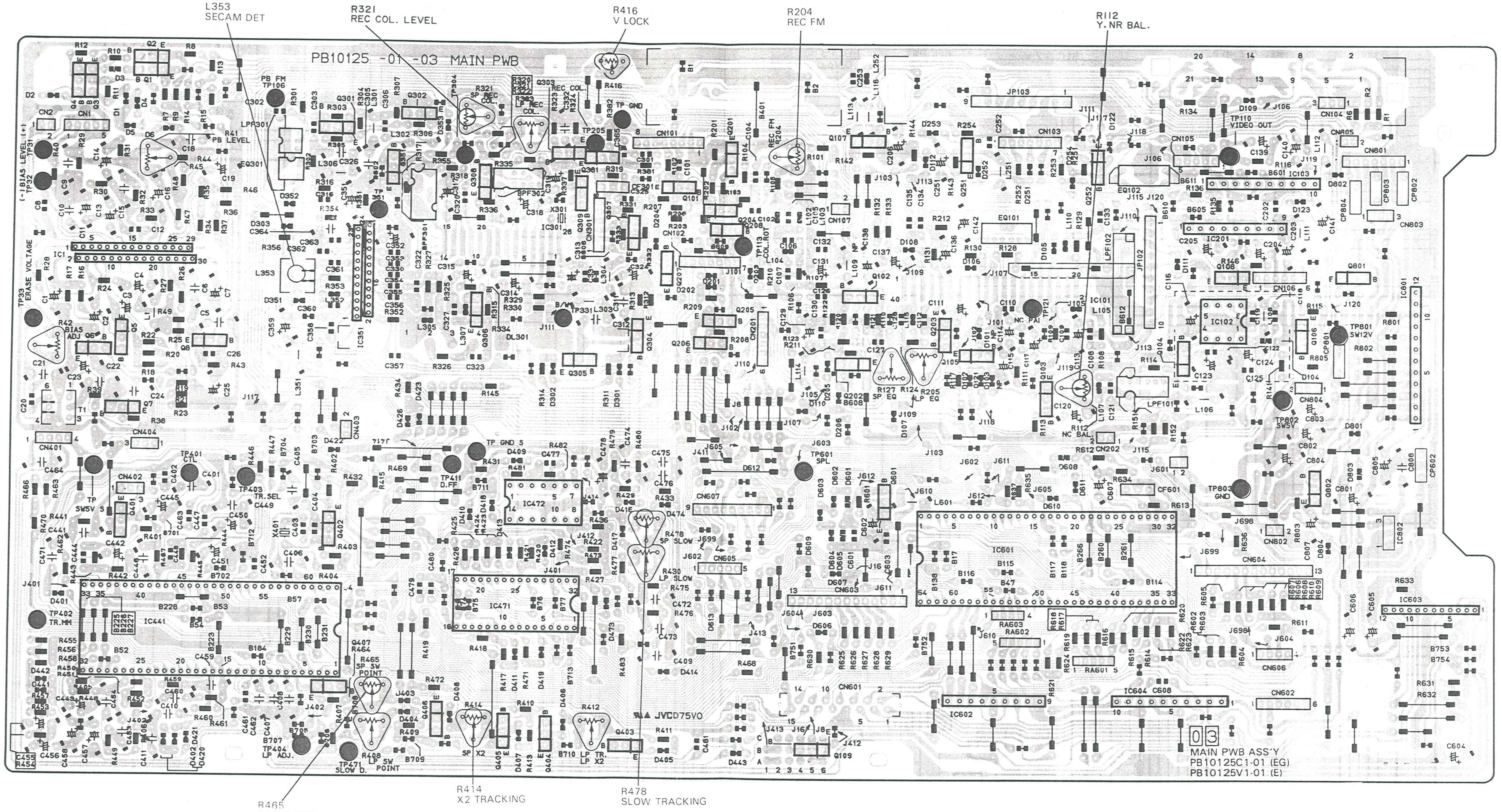
PB40029

3.13 SERVO SCHEMATIC DIAGRAM

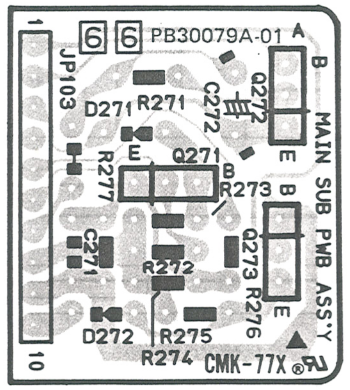

03 SERVO
TP401 CTL PULSE
PB 2.5 Vp-p
Q407 DTC144ES
REC/PB 5.0 Vp-p
Q401 DTC144ES
To 03 AUDIO
AUDIO BIAS
SWD 5V
IC472 BU4069UB
D418
R415 100K
R416 1M
R416 V.LOCK
Q401
CN402
CN2
12 A/CTL HEAD
From/To 03 MECHACON
SWD 5V
GND
GND (M)
MOTOR 12V
From/To 58 DRUM MOTOR CN1
CN401
MOTOR 12V
GND (M)
DRUM PG/FG
DRUM DRIVE
C464 0.47
D401
C471 0.001
C477 120P
R481 100K
R482 4.7K
C478 22/10
C411 0.27
D443
R406 2.2K
R449 33K
C453 0.56
C454 0.015
R405 27K
R448 4.7M
R450 3.9K
R451 15K
R452 1.8K
R454 27K
R453 1M
C456 4.7/25
C455 4.7/25
D442
D441
R458 270K
R456 1M
R457 27K
C458 10/16
R461 330K
C460 0.33
C457 10/16
C459 0.033
R455 3.9M
R459 39K
R460 4.7M
SW1
SW2
SW3
SW4
SW5
CAP F-V
CAP APC DET
DRUM APC DET
DRUM F-V
CAP REF
DRUM REF
CLK
REC : ON
PB : ON
Vcc/2
Vcc
GND
R441 6.8K
C441 0.001
C442 22/10
C401 0.047
C443 22/10
R442 1K
C444 15P
R443 1.5M
C445 1/50
R401 1K
C402 0.001
C446 0.015
C463 0.001
R467 10K
C448 560P
R444 1M
C450 1/50
R445 1K
C451 22/10
PB REC 1.4 Vp-p
REC, CTL GEN INDEX DET
C449 0.001
SERIAL DECODER
CAP FG CD
PB CTL CD
SYNC SEP
C452 100P
R468 1K
R446 3.3K
R447 1K
TK SEL
REF SEL A
REF SEL B
SWD 5V
C406 0.001
CLK
From/To 03 MECHACON
CAP FG
CAP FG
CTL ERASE
INDEX
CTL CLOCK
SRL DATA
SRL CLK
CAP FG
CTL PULSE
From/To 03 VIDEO
SYNC
3fsc
R469 1K
DRUM FF
YNR PULSE
V PULSE
DRUM SERVO
DRUM ON/OFF
SERVO MODE
CAP DRIVE
CAP FWD
CAP REV
TP471
D402
C481 560P
R472 100K
R427 10K
D414
D473
R473 15K
R474 8.2K
D413
C409 0.22
R422 10K
R421 10
R420 33K
D412
R423 18K
R425 10K
C472 0.039
R475 330K
C473 0.039
R476 680K
C474 0.1
R477 10K
R479 150K
C475 0.12
R480 270K
C476 0.039
R478 1M
R478 SLOW TRACKING
IC471 BU2767S
LOGIC
H. JITTER COMP
START MM
ACC MM
REW MM
H. COM MM
TRACKING COUNTER
V. JITTER COMP
Vcc
GND
SWD 5V
R483 10K
R471 1K
R432 6.8K
D411
R417 1K
R418 68K
R419 270K
C479 100P
C480 100P
R462 2.2K
R470 150K
C461 470P
R463 1K
R465 PB SW POINT
R464 100K
R465 680K
R466 150K
R407 3.3K
C462 0.0068
C407 0.001
C408 0.12
REC PB 4 Vp-p
DRUM PG/FG
SW MM
VP MM
VP SEL
GND
SP
X2
DRUM FF & V PULSE GEN
IC441 HD49722NT
Q405
Q406
R410 22K
D407
D408
R413 390K
R414 470K
R414 X2 TRACKING
TP GND
TP411 DRUM FF
From/To 03 MECHACON
SLOW TK (−)
SLOW TK (+)
SLOW PULSE
DRUM FF
V PULSE ON
SLOW/STILL MODE
D419
D422
Q405,Q406 DTA124ES
To 43 PRE/REC CN4
CN404
HEAD SEL
A/M/S SEL
S/S MODE
REC PB 5.5 Vp-p
5
4
3
2
1
A
B
C
D
E
F
G
H

3.14 MAIN, MAIN SUB AND REMOTE PAUSE ADAPT CIRCUIT BOARDS

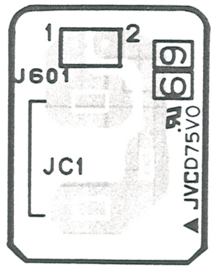
—MAIN—


L353
SECAM DET
R321
REC COL. LEVEL
R416
V LOCK
R204
REC FM
R112
Y.NR BAL.
PB10125-01-03 MAIN PWB
MAIN PWB ASS'Y
PB10125C1-01 (EG)
PB10125V1-01 (E)
JVCD75V0
R465
PB SW POINT
R414
X2 TRACKING
R478
SLOW TRACKING
5
4
3
2
1
A
B
C
D
E
F
G
H

—MAIN SUB—


PB30079A-01
JP103
MAIN SUB PWB ASS'Y
CMK-77X
D271
R271
C272
Q272
Q271
R277
R273
C271
Q273
R272
R276
D272
R275
R274

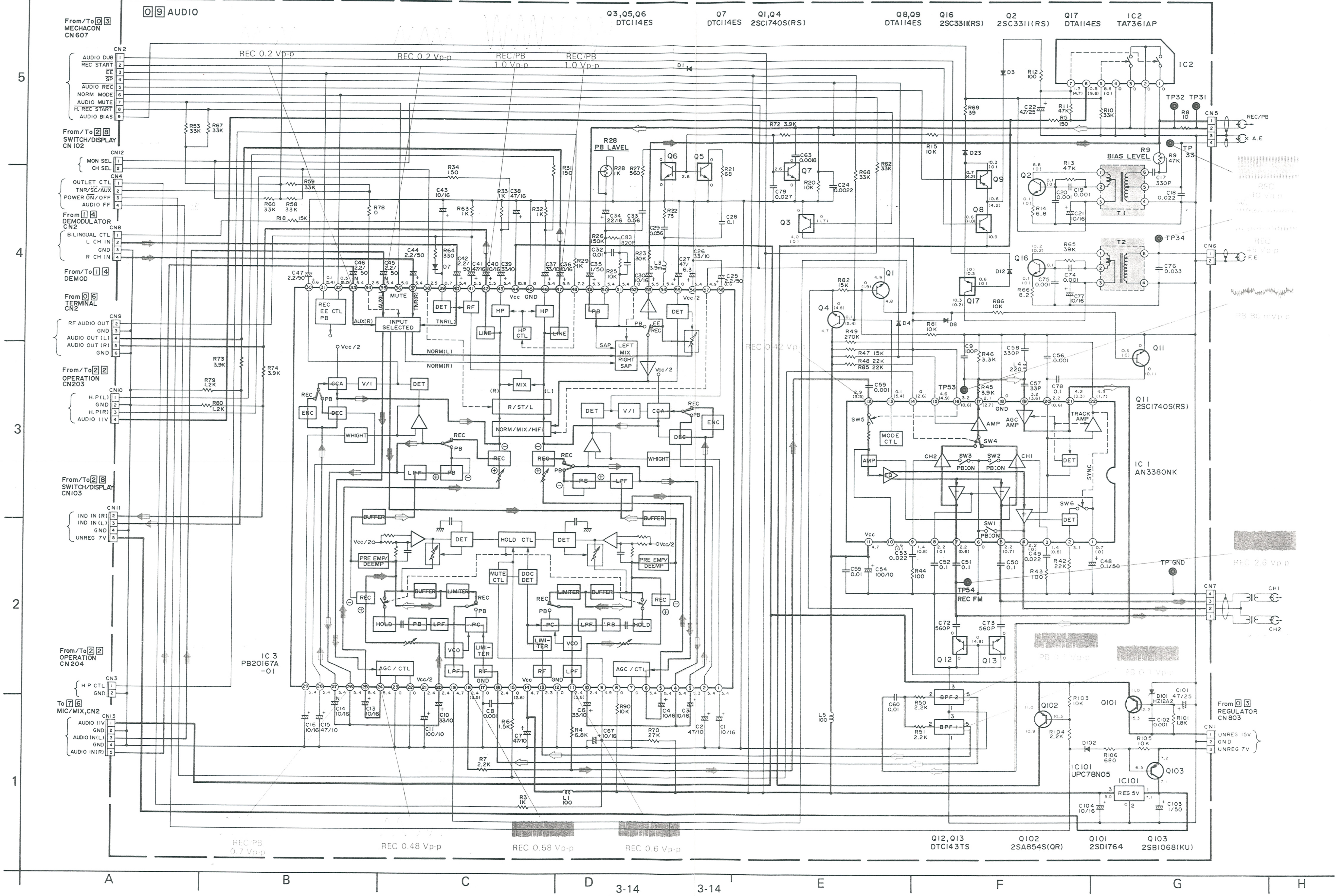
—REMOTE PAUSE ADAPT—


J601
JC1
JVCD75V0

PB10125A2

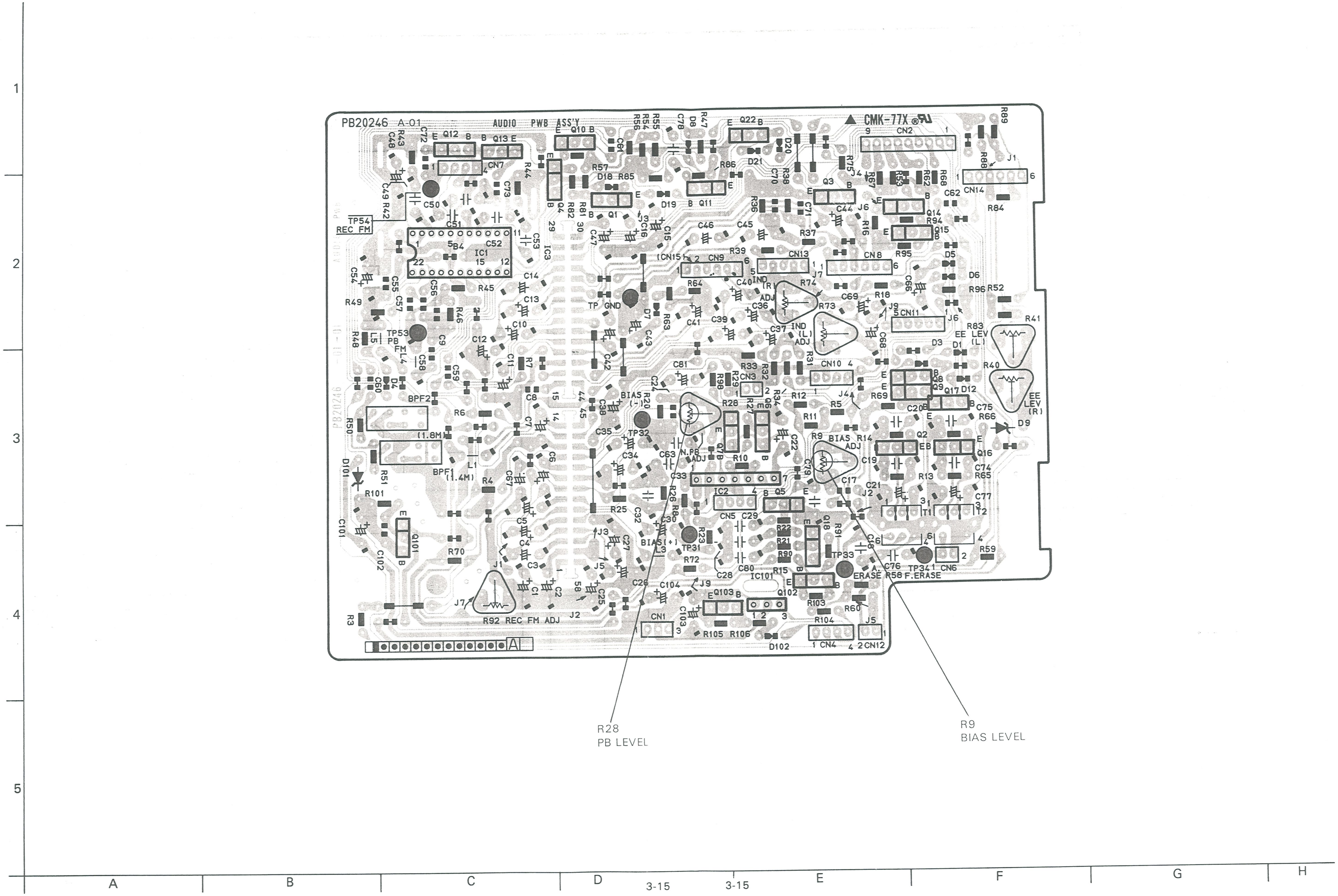
3.15 AUDIO SCHEMATIC DIAGRAM

NOTE: Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

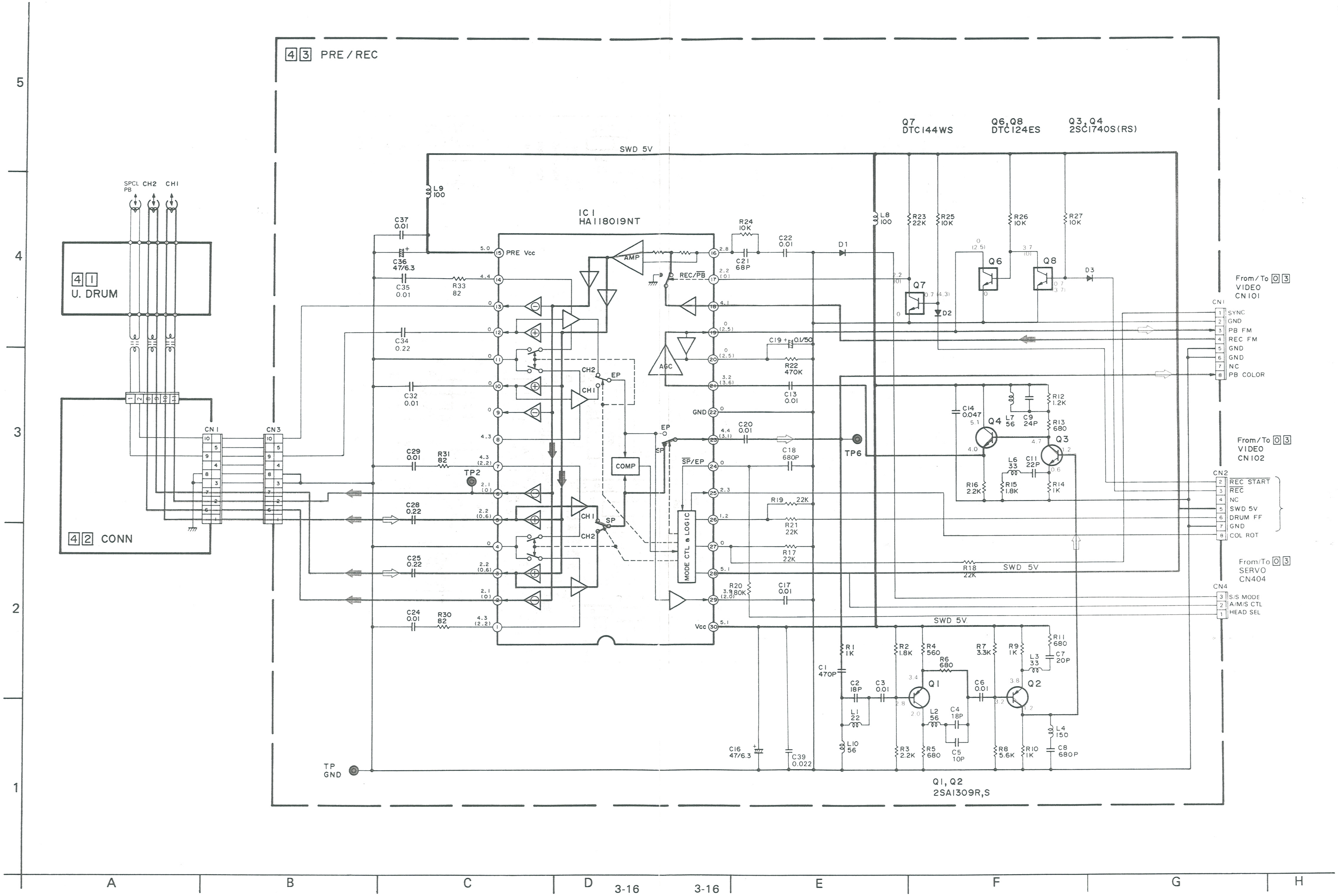


09 AUDIO
Q3,Q5,Q6 DTC114ES
Q7 DTC114ES
Q1,Q4 2SC1740S(RS)
Q8,Q9 DTA114ES
Q16 2SC3311(RS)
Q2 2SC3311(RS)
Q17 DTA114ES
IC2 TA7361AP
From/To 03 MECHACON CN607
CN2
AUDIO DUB
REC START
EE
SP
AUDIO REC
NORM MODE
AUDIO MUTE
H. REC START
AUDIO BIAS
From/To 28 SWITCH/DISPLAY CN102
CN12
MON SEL
CH SEL
CN4
OUTLET CTL
TNR/SC/AUX
POWER ON/OFF
AUDIO FF
From 14 DEMODULATOR CN2
CN8
BILINGUAL CTL
L CH IN
GND
R CH IN
From/To 14 DEMOD
From 06 TERMINAL CN2
CN9
RF AUDIO OUT
GND
AUDIO OUT (L)
AUDIO OUT (R)
From/To 22 OPERATION CN203
CN10
H.P(L)
GND
H.P(R)
AUDIO IIV
From/To 28 SWITCH/DISPLAY CN103
CN11
IND IN (R)
IND IN (L)
GND
UNREG 7V
From/To 22 OPERATION CN204
CN3
H P CTL
GND
To 76 MIC/MIX,CN2
CN13
AUDIO IIV
GND
AUDIO IN(L)
GND
AUDIO IN(R)
REC 0.2 Vp-p
REC 0.2 Vp-p
REC/PB 1.0 Vp-p
REC/PB 1.0 Vp-p
R28 PB LAVEL
BIAS LEVEL
TP32 TP31
TP 33
TP34
TP53
TP54 REC FM
TP GND
CN5
REC/PB
A.E
CN6
F.E
CN7
CH1
CH2
IC3 PB20167A -01
IC1 AN3380NK
Q11 2SC1740S(RS)
INPUT SELECTED
MUTE
R/ST/L
NORM/MIX/HIFI
HOLD CTL
MUTE CTL
DOC DET
AGC / CTL
PRE EMP/ DEEMP
BUFFER
LIMITER
MODE CTL
TRACK AMP
AGC AMP
From 03 REGULATOR CN803
CN1
UNREG 15V
GND
UNREG 7V
IC101 UPC78N05
REG 5V
REC PB 0.7 Vp-p
REC 0.48 Vp-p
REC 0.58 Vp-p
REC 0.6 Vp-p
REC 0.42 Vp-p
Q12,Q13 DTC143TS
Q102 2SA854S(QR)
Q101 2SD1764
Q103 2SB1068(KU)
A
B
C
D
E
F
G
H
1
2
3
4
5

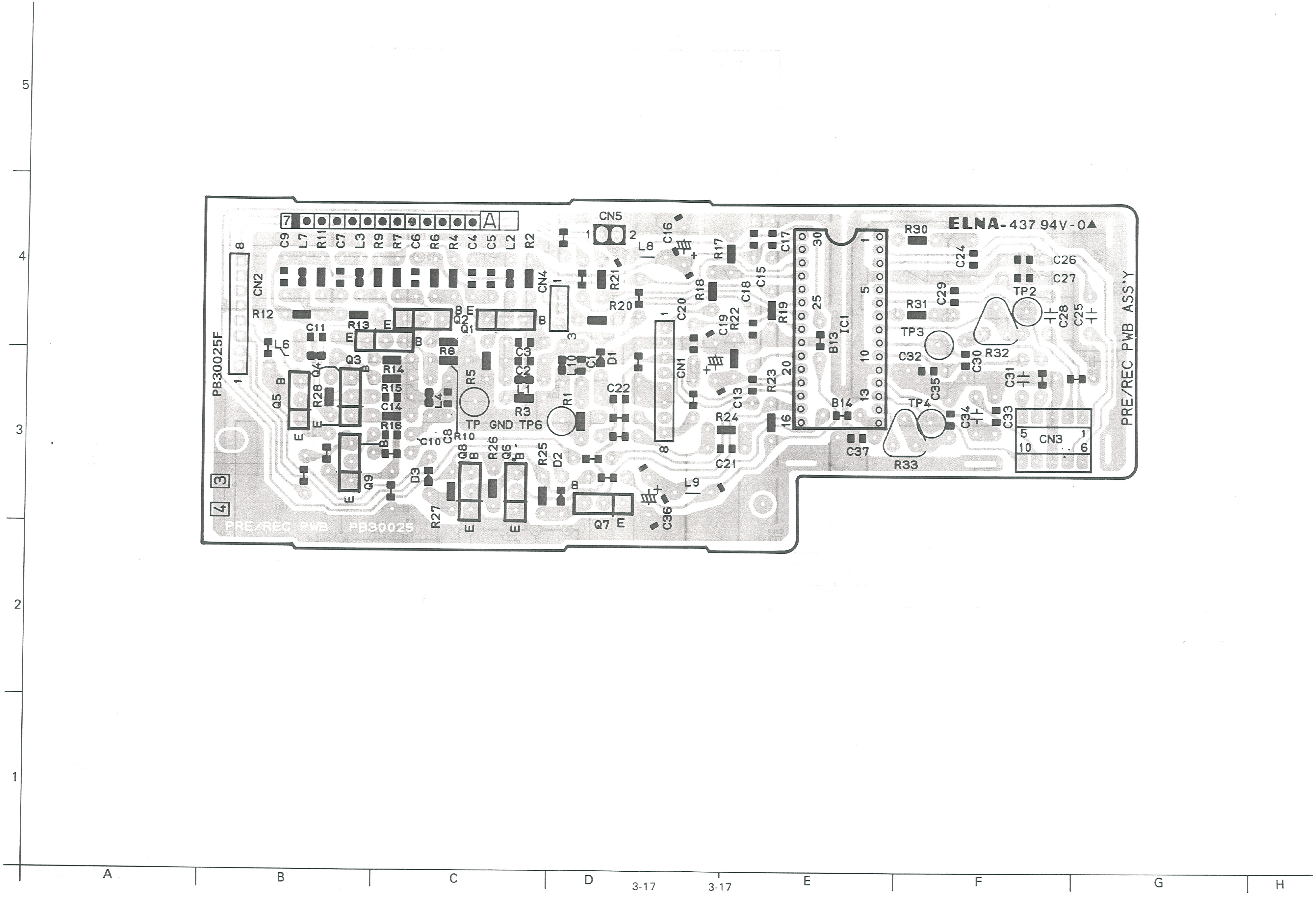
3.16 AUDIO CIRCUIT BOARDS


PB20246 A-01
AUDIO PWB ASS'Y
CMK-77X
TP54 REC FM
TP53 PB FM
TP GND
BIAS (-)
TP32
N.PB ADJ
BIAS (+)
TP31
TP33 A.ERASE
TP34 F.ERASE
IND (R) ADJ
IND (L) ADJ
EE LEV (L)
EE LEV (R)
BIAS ADJ
R92 REC FM ADJ
BPF1 (1.4M)
BPF2 (1.8M)
R28
PB LEVEL
R9
BIAS LEVEL
1
2
3
4
5
A
B
C
D
E
F
G
H
3-15
3-15

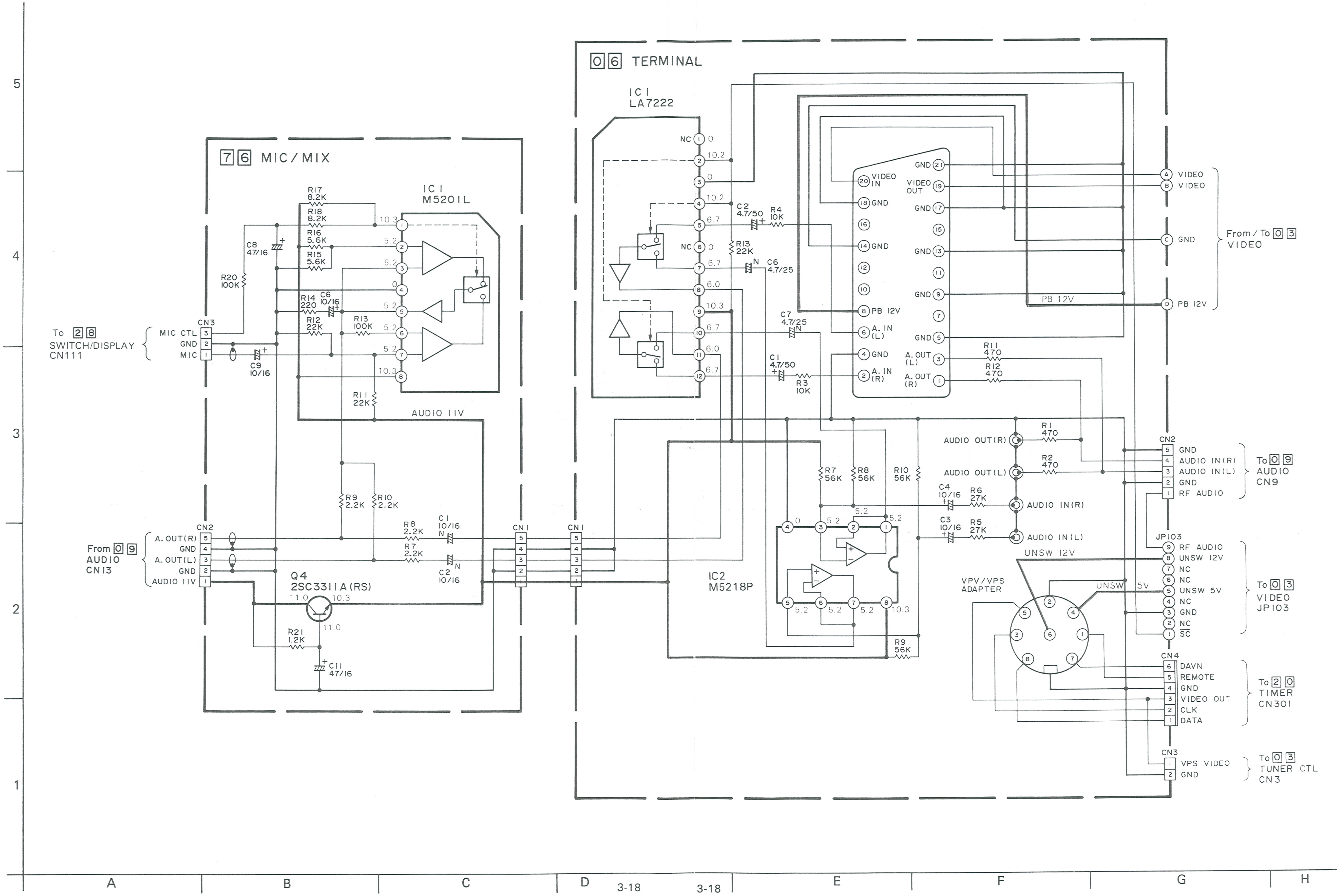
3.17 PRE/REC SCHEMATIC DIAGRAM


4 3 PRE / REC
4 1 U. DRUM
4 2 CONN
SPCL PB
CH2
CH1
CN1
CN3
IC1
HA118019NT
PRE Vcc
AMP
REC/PB
AGC
COMP
MODE CTL & LOGIC
CH2
CH1
EP
SP
SP/EP
GND
Vcc
SWD 5V
L9 100
C37 0.01
C36 47/6.3
C35 0.01
R33 82
C34 0.22
C32 0.01
C29 0.01
R31 82
TP2
C28 0.22
C25 0.22
C24 0.01
R30 82
R24 10K
C21 68P
C22 0.01
D1
C19 0.1/50
R22 470K
C13 0.01
C20 0.01
TP6
C18 680P
R19 22K
R21 22K
R17 22K
R18 22K
R20 180K
C17 0.01
C16 47/6.3
C39 0.022
TP GND
Q7 DTC144WS
Q6, Q8 DTC124ES
Q3, Q4 2SC1740S(RS)
L8 100
R23 22K
R25 10K
R26 10K
R27 10K
Q7
Q6
Q8
D2
D3
C14 0.047
L7 56
C9 24P
R12 1.2K
R13 680
Q4
Q3
L6 33
C11 22P
R16 2.2K
R15 1.8K
R14 1K
R1 1K
C1 470P
C2 18P
C3 0.01
L1 22
L10 56
R2 1.8K
R4 560
R6 680
Q1
L2 56
C4 18P
C5 10P
R3 2.2K
R5 680
C6 0.01
R7 3.3K
R9 1K
L3 33
R11 680
C7 20P
Q2
L4 150
C8 680P
R8 5.6K
R10 1K
Q1, Q2
2SA1309R,S
From/To 0 3
VIDEO
CN101
CN1
1 SYNC
2 GND
3 PB FM
4 REC FM
5 GND
6 GND
7 NC
8 PB COLOR
From/To 0 3
VIDEO
CN102
CN2
2 REC START
3 REC
4 NC
5 SWD 5V
6 DRUM FF
7 GND
8 COL ROT
From/To 0 3
SERVO
CN404
CN4
3 S/S MODE
2 A/M/S CTL
1 HEAD SEL
1
2
3
4
5
A
B
C
D
E
F
G
H

3.18 PRE/REC CIRCUIT BOARD


5
4
3
2
1
A
B
C
D
E
F
G
H
ELNA-437 94V-0▲
PRE/REC PWB ASS'Y
PRE/REC PWB PB30025
PB30025F
7
A
C9 L7 R11 C7 L3 R9 R7 C6 R6 R4 C4 C5 L2 R2
CN2
8
1
CN4
CN5
CN1
CN3
IC1
R12
R13
C11
L6
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
R8
R14
R15
R16
C14
C10
C8
R10
R5
TP GND TP6
R3
C3
C2
L1
L4
L10
C1
D1
D2
D3
R1
R25
R26
R27
R28
C22
L8
C16
R17
R18
R19
R20
R21
R22
R23
R24
C13
C15
C17
C18
C19
C20
C21
C36
L9
B13
B14
R30
R31
R32
R33
C24
C25
C26
C27
C28
C29
C30
C31
C32
C33
C34
C35
C37
TP2
TP3
TP4
B
E
3
4

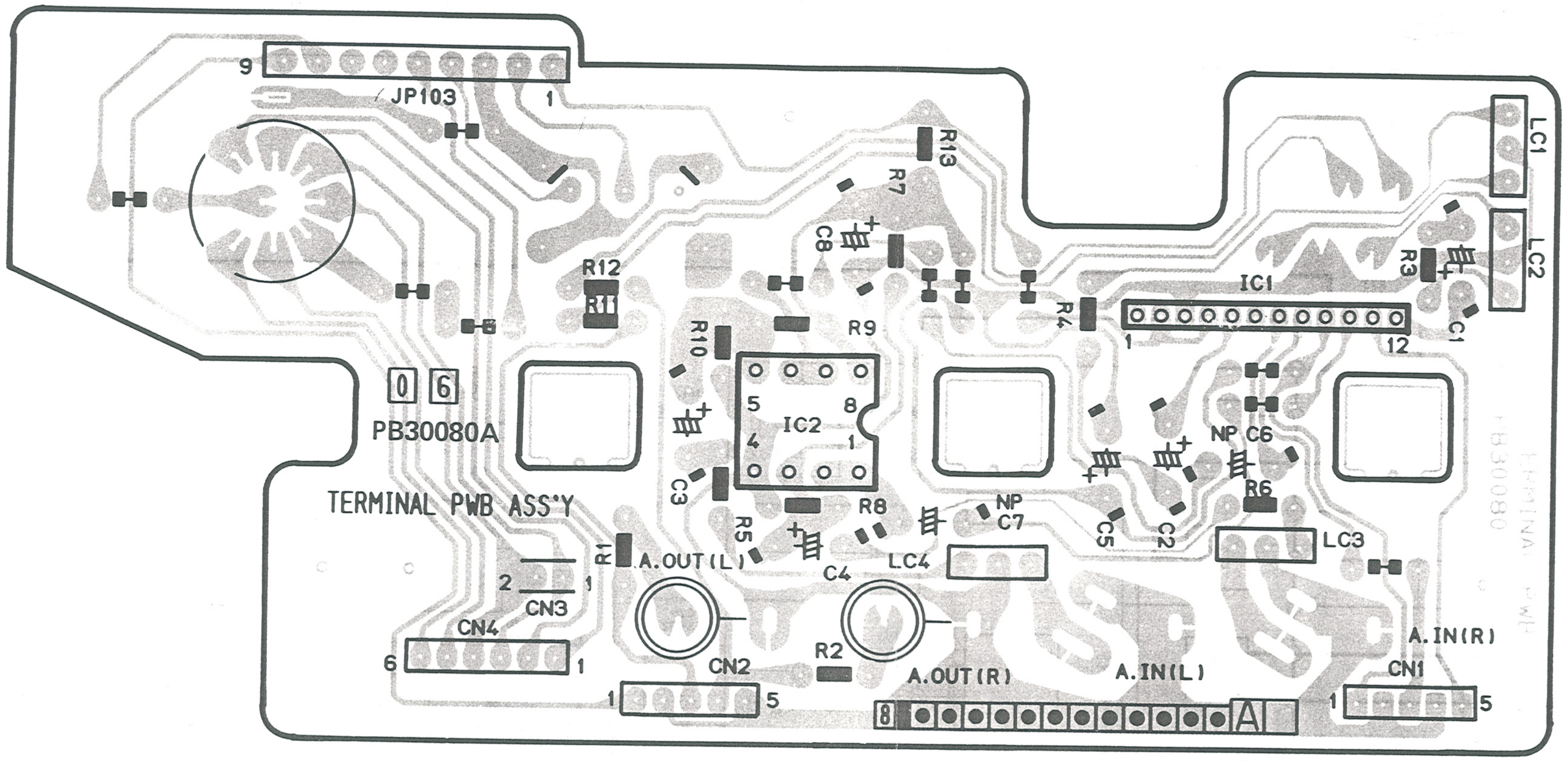
3.19 TERMINAL AND MIC/MIX SCHEMATIC DIAGRAMS



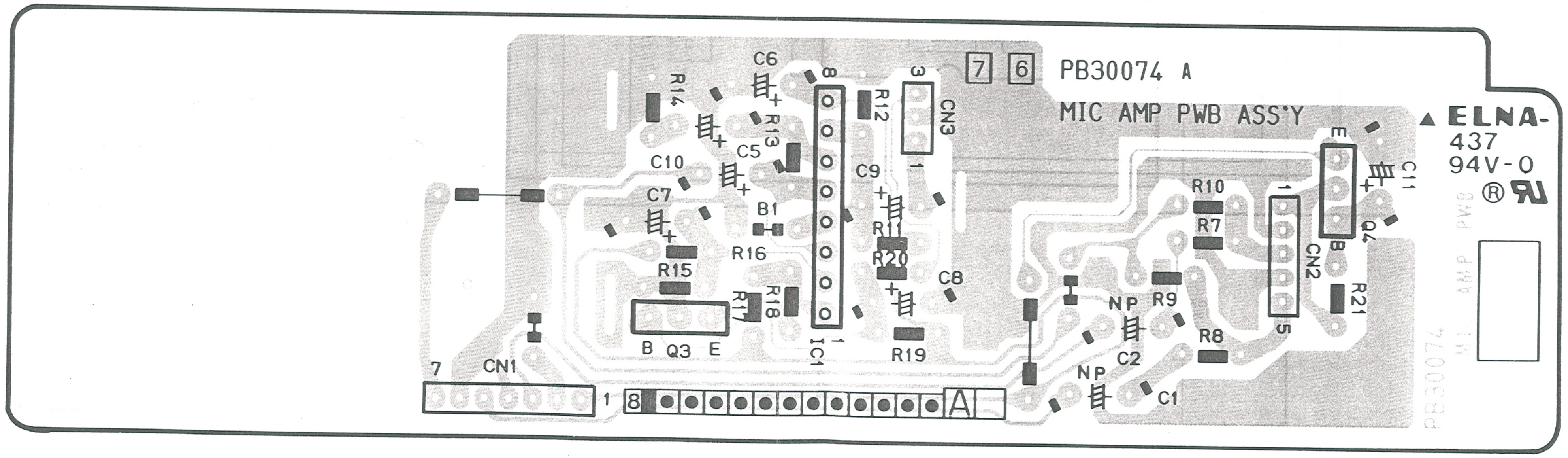
76 MIC/MIX
IC1 M5201L
R17 8.2K
R18 8.2K
R16 5.6K
R15 5.6K
C8 47/16
R20 100K
R14 220
C6 10/16
R12 22K
R13 100K
R11 22K
C9 10/16
CN3
MIC CTL
GND
MIC
To 28 SWITCH/DISPLAY CN111
AUDIO 11V
R9 2.2K
R10 2.2K
R8 2.2K
R7 2.2K
C1 10/16
C2 10/16
CN2
A. OUT(R)
GND
A. OUT(L)
GND
AUDIO 11V
From 09 AUDIO CN13
Q4 2SC3311A(RS)
R21 1.2K
C11 47/16
CN1
06 TERMINAL
IC1 LA7222
NC
C2 4.7/50
R4 10K
R13 22K
C6 4.7/25
C7 4.7/25
C1 4.7/50
R3 10K
VIDEO IN
VIDEO OUT
GND
PB 12V
A. IN (L)
A. IN (R)
A. OUT (L)
A. OUT (R)
R11 470
R12 470
VIDEO
VIDEO
GND
PB 12V
From / To 03 VIDEO
IC2 M5218P
R7 56K
R8 56K
R10 56K
R9 56K
AUDIO OUT(R)
AUDIO OUT(L)
AUDIO IN(R)
AUDIO IN(L)
R1 470
R2 470
C4 10/16
R6 27K
C3 10/16
R5 27K
CN2
GND
AUDIO IN(R)
AUDIO IN(L)
GND
RF AUDIO
To 09 AUDIO CN9
JP103
RF AUDIO
UNSW 12V
NC
NC
UNSW 5V
NC
GND
NC
SC
To 03 VIDEO JP103
UNSW 12V
UNSW 5V
VPV/VPS ADAPTER
CN4
DAVN
REMOTE
GND
VIDEO OUT
CLK
DATA
To 20 TIMER CN301
CN3
VPS VIDEO
GND
To 03 TUNER CTL CN3
A
B
C
D
E
F
G
H
1
2
3
4
5

3.20 TERMINAL AND MIC/MIX CIRCUIT BOARDS

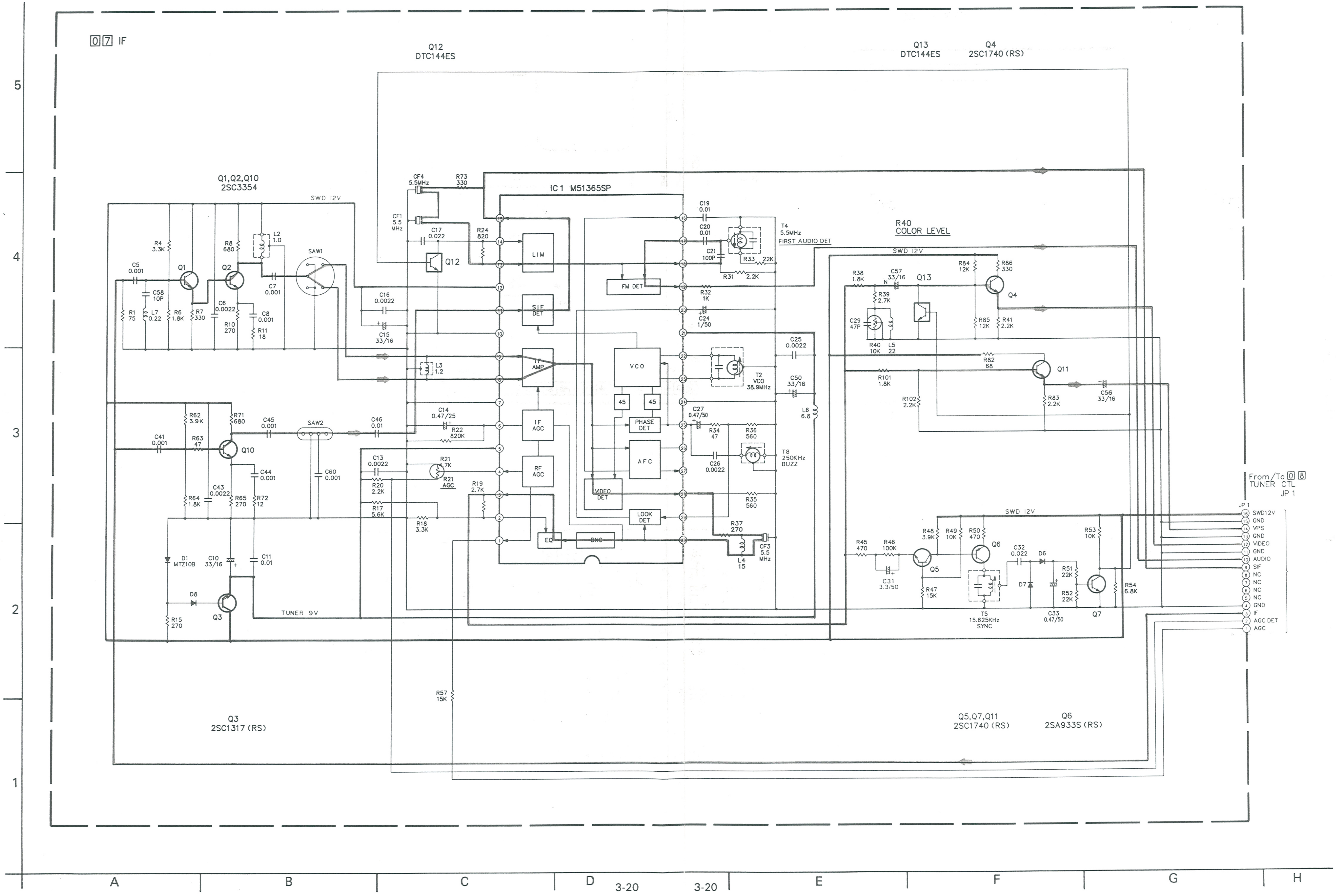
—TERMINAL—


9
JP103
1
R13
R7
C8
R12
R11
R10
R9
R4
IC1
1
12
R3
C1
LC1
LC2
0 6
PB30080A
TERMINAL PWB ASS'Y
5
8
IC2
4
1
C3
R5
R8
NP
C7
C5
C2
NP C6
R6
LC3
R1
A.OUT(L)
C4
LC4
2
1
CN3
CN4
6
1
CN2
1
5
R2
A.OUT(R)
A.IN(L)
A.IN(R)
CN1
1
5
8
A

—MIC MIX—

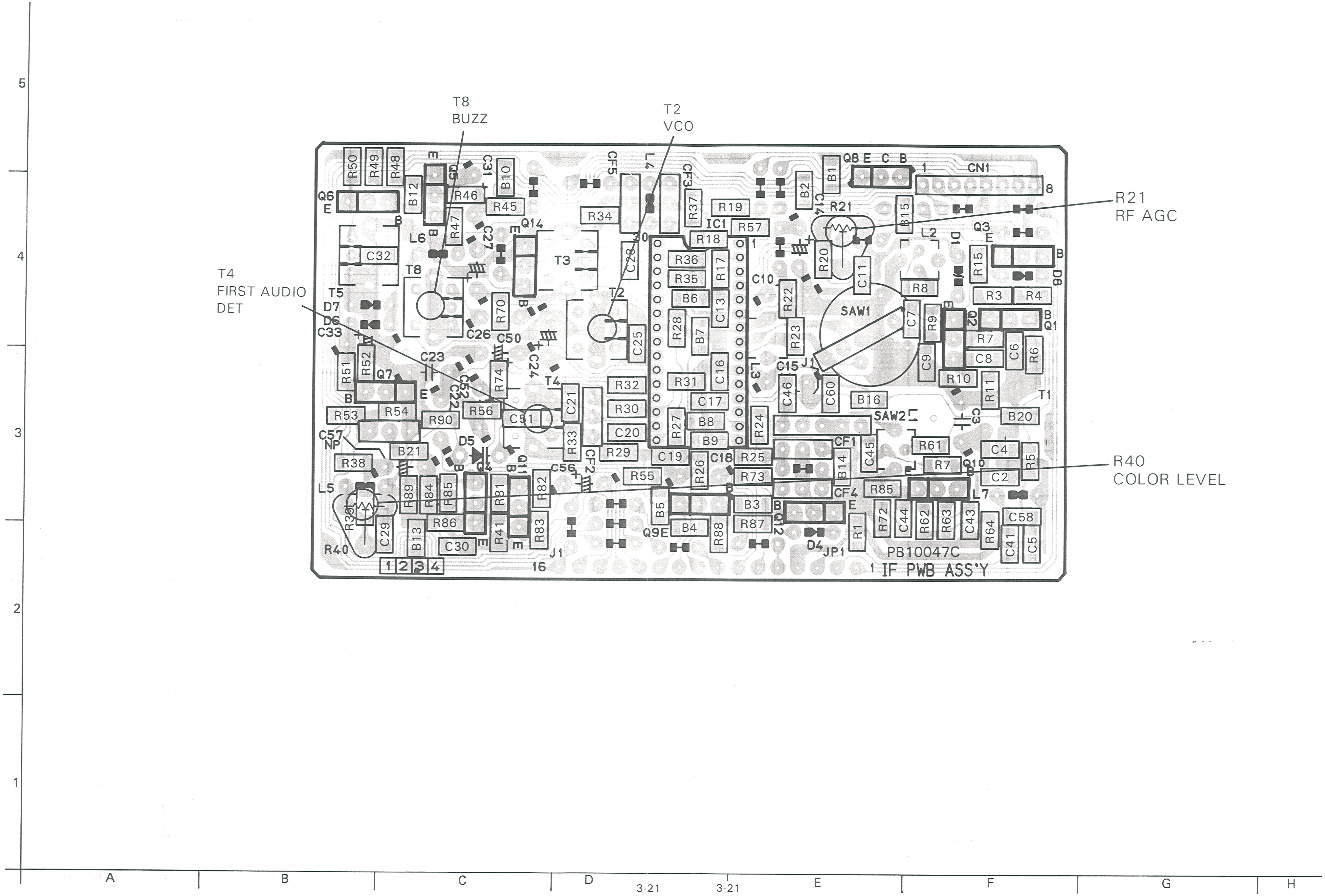

C6
R14
8
R12
3
CN3
1
7 6
PB30074 A
MIC AMP PWB ASS'Y
▲ELNA-
437
94V-0
R13
C5
C10
C9
C7
B1
R11
R20
R16
R15
R17
R18
C8
R19
B Q3 E
IC1
1
R10
R7
R9
R8
NP
C2
NP
C1
E
C11
B
Q4
1
CN2
5
R21
7
CN1
1
8
A
5
4
3
2
1
A
B
C
D
E
F
G
H

3.21 IF SCHEMATIC DIAGRAM



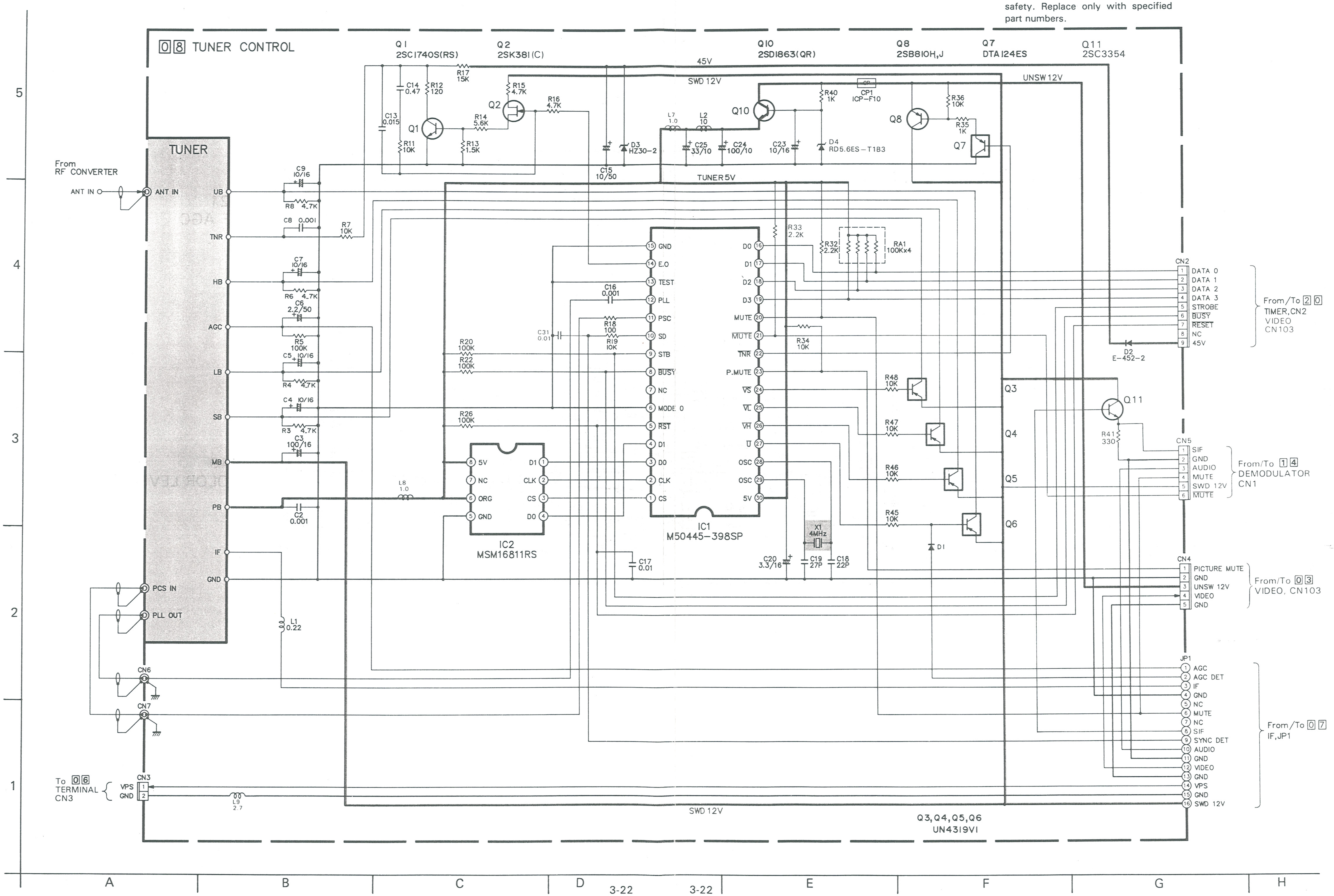
07 IF
Q12 DTC144ES
Q13 DTC144ES
Q4 2SC1740 (RS)
Q1,Q2,Q10 2SC3354
SWD 12V
CF4 5.5MHz
R73 330
IC1 M51365SP
CF1 5.5 MHz
C17 0.022
R24 820
Q12
LIM
SIF DET
IF AMP
IF AGC
RF AGC
EQ
BNC
FM DET
VCO
45
45
PHASE DET
AFC
VIDEO DET
LOOK DET
C19 0.01
C20 0.01
C21 100P
R33 22K
R31 2.2K
T4 5.5MHz
FIRST AUDIO DET
R32 1K
C24 1/50
C25 0.0022
T2 VCO 38.9MHz
C50 33/16
L6 6.8
C27 0.47/50
R34 47
R36 560
C26 0.0022
T8 250KHz BUZZ
R35 560
R37 270
CF3 5.5 MHz
L4 15
R40 COLOR LEVEL
SWD 12V
R38 1.8K
C57 33/16
Q13
R39 2.7K
C29 47P
R40 10K
L5 22
R84 12K
R86 330
Q4
R85 12K
R41 2.2K
R82 68
Q11
R101 1.8K
R102 2.2K
R83 2.2K
C56 33/16
R4 3.3K
R8 680
L2 1.0
SAW1
C5 0.001
Q1
Q2
C7 0.001
C58 10P
R1 75
L7 0.22
R6 1.8K
R7 330
C6 0.0022
R10 270
C8 0.001
R11 18
C16 0.0022
C15 33/16
L3 1.2
C14 0.47/25
R22 820K
R62 3.9K
R71 680
C45 0.001
SAW2
C46 0.01
C41 0.001
R63 47
Q10
C44 0.001
C60 0.001
C13 0.0022
R21 4.7K
R21 AGC
R20 2.2K
R19 2.7K
R17 5.6K
R18 3.3K
R64 1.8K
C43 0.0022
R65 270
R72 12
D1 MTZ10B
C10 33/16
C11 0.01
D8
Q3
R15 270
TUNER 9V
SWD 12V
R48 3.9K
R49 10K
R50 470
Q6
R53 10K
R45 470
R46 100K
Q5
C32 0.022
D6
C31 3.3/50
R47 15K
D7
R51 22K
R52 22K
Q7
R54 6.8K
T5 15.625KHz SYNC
C33 0.47/50
From/To 08 TUNER CTL JP1
JP 1
16 SWD12V
15 GND
14 VPS
13 GND
12 VIDEO
11 GND
10 AUDIO
9 SIF
8 NC
7 NC
6 NC
5 NC
4 GND
3 IF
2 AGC DET
1 AGC
R57 15K
Q3 2SC1317 (RS)
Q5,Q7,Q11 2SC1740 (RS)
Q6 2SA933S (RS)
5
4
3
2
1
A
B
C
D
E
F
G
H

3.22 IF CIRCUIT BOARD


T8
BUZZ
T2
VCO
T4
FIRST AUDIO
DET
R21
RF AGC
R40
COLOR LEVEL
PB10047C
IF PWB ASS'Y
5
4
3
2
1
A
B
C
D
E
F
G
H

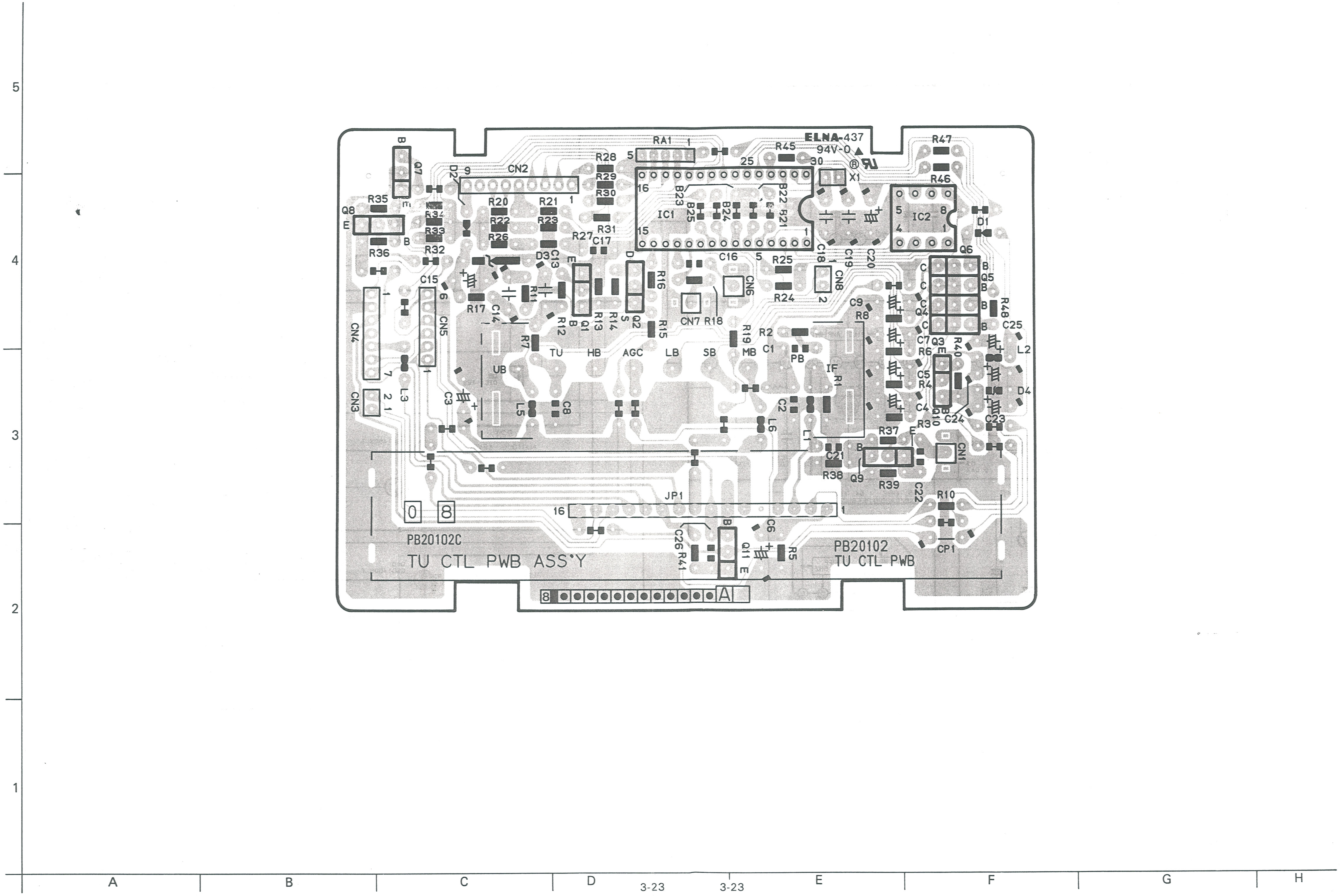
3.23 TUNER CONTROL SCHEMATIC DIAGRAM

NOTE: Shaded (▒) parts are critical for safety. Replace only with specified part numbers.



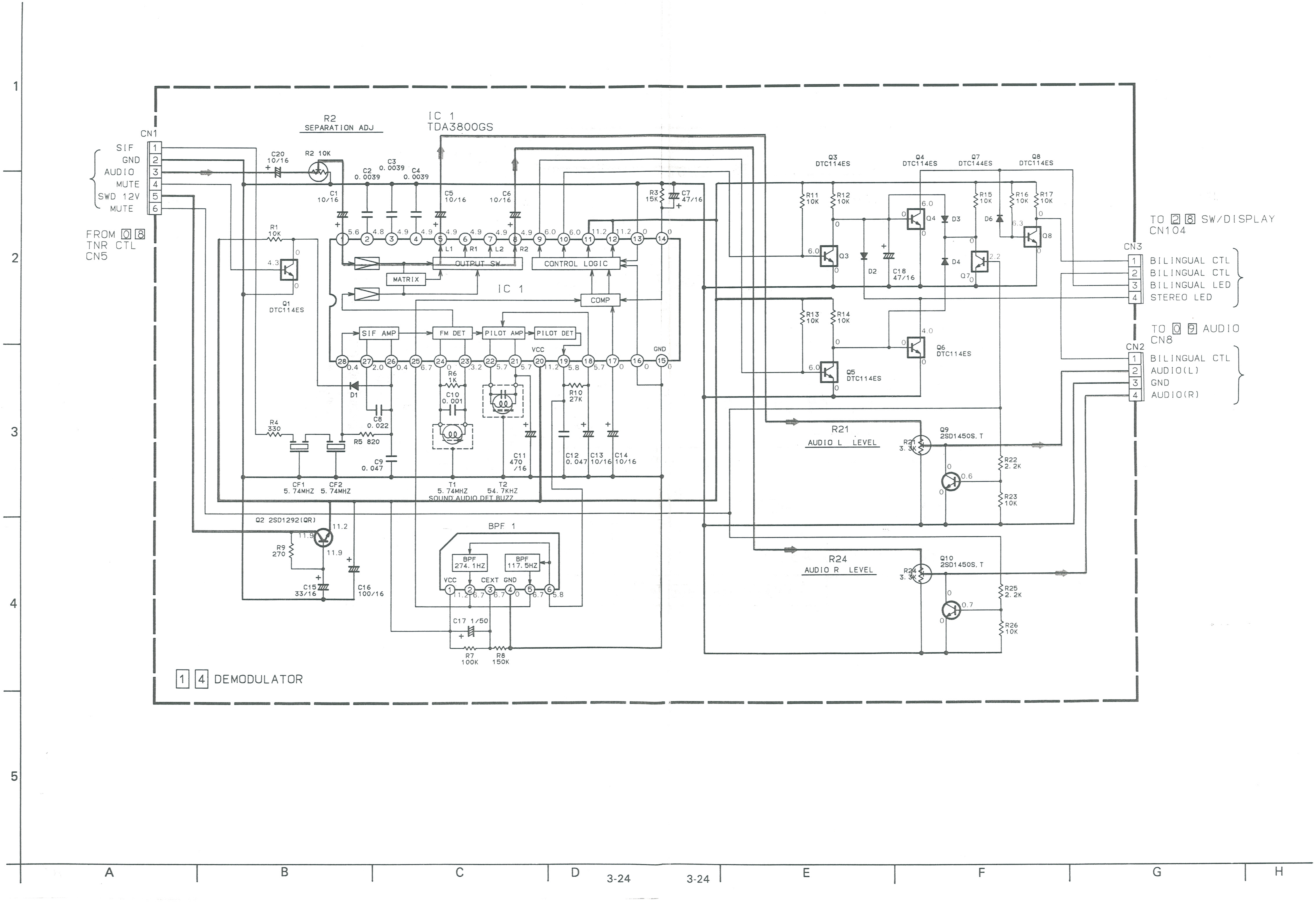
08 TUNER CONTROL
Q1 2SC1740S(RS)
Q2 2SK381(C)
Q10 2SD1863(QR)
Q8 2SB810H,J
Q7 DTA124ES
Q11 2SC3354
45V
SWD 12V
UNSW 12V
TUNER 5V
R17 15K
C14 0.47
R12 120
R15 4.7K
R16 4.7K
R14 5.6K
C13 0.015
R11 10K
R13 1.5K
C15 10/50
D3 HZ30-2
L7 1.0
L2 10
C25 33/10
C24 100/10
C23 10/16
R40 1K
CP1 ICP-F10
D4 RD5.6ES-T1B3
R36 10K
R35 1K
TUNER
From RF CONVERTER
ANT IN
UB
TNR
HB
AGC
LB
SB
MB
PB
IF
GND
PCS IN
PLL OUT
C9 10/16
R8 4.7K
C8 0.001
R7 10K
C7 10/16
R6 4.7K
C6 2.2/50
R5 100K
C5 10/16
R4 4.7K
C4 10/16
R3 4.7K
C3 100/16
C2 0.001
L8 1.0
L1 0.22
R33 2.2K
R32 2.2K
RA1 100Kx4
C16 0.001
C31 0.01
R18 100
R19 10K
R20 100K
R22 100K
R26 100K
R34 10K
GND
E.O
TEST
PLL
PSC
SD
STB
BUSY
NC
MODE 0
RST
D1
D0
CLK
CS
D0
D1
D2
D3
MUTE
MUTE
TNR
P.MUTE
VS
VL
VH
U
OSC
OSC
5V
IC1 M50445-398SP
5V
NC
ORG
GND
D1
CLK
CS
DO
IC2 MSM16811RS
C17 0.01
C20 3.3/16
X1 4MHz
C19 27P
C18 22P
R48 10K
R47 10K
R46 10K
R45 10K
D1
Q3
Q4
Q5
Q6
R41 330
D2 E-452-2
CN2
DATA 0
DATA 1
DATA 2
DATA 3
STROBE
BUSY
RESET
NC
45V
From/To 20 TIMER, CN2 VIDEO CN103
CN5
SIF
GND
AUDIO
MUTE
SWD 12V
MUTE
From/To 14 DEMODULATOR CN1
CN4
PICTURE MUTE
GND
UNSW 12V
VIDEO
GND
From/To 03 VIDEO, CN103
JP1
AGC
AGC DET
IF
GND
NC
MUTE
NC
SIF
SYNC DET
AUDIO
GND
VIDEO
GND
VPS
GND
SWD 12V
From/To 07 IF, JP1
CN6
CN7
CN3
VPS
GND
To 06 TERMINAL CN3
L9 2.7
SWD 12V
Q3,Q4,Q5,Q6 UN4319VI
5
4
3
2
1
A
B
C
D
E
F
G
H

3.24 TUNER CONTROL CIRCUIT BOARD



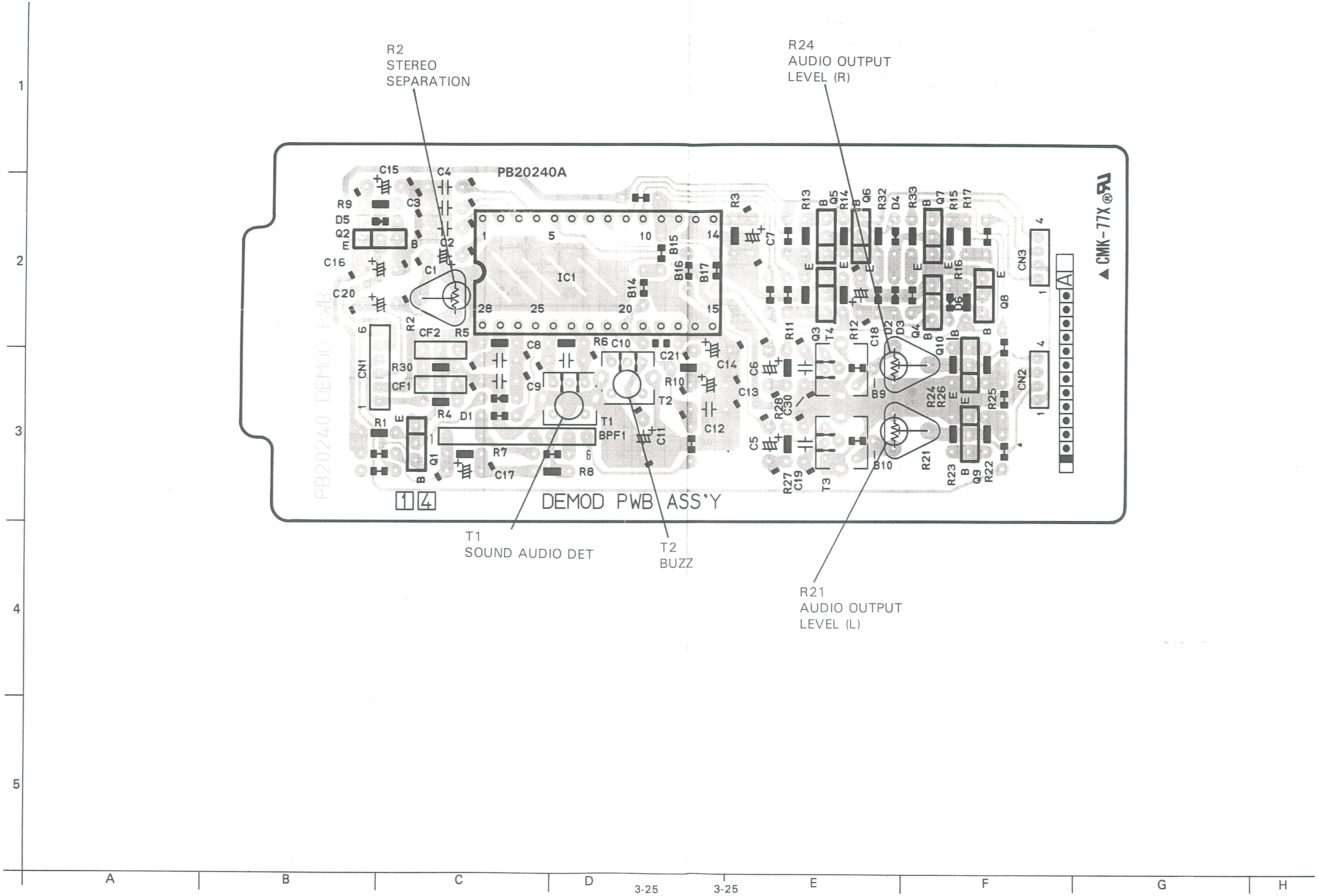
ELNA-437
94V-0
RA1
IC1
IC2
X1
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
JP1
TU
HB
AGC
LB
SB
MB
UB
IF
PB
CP1
PB20102C
TU CTL PWB ASS'Y
PB20102
TU CTL PWB
1
2
3
4
5
A
B
C
D
E
F
G
H

3.25 DEMODULATOR SCHEMATIC DIAGRAM



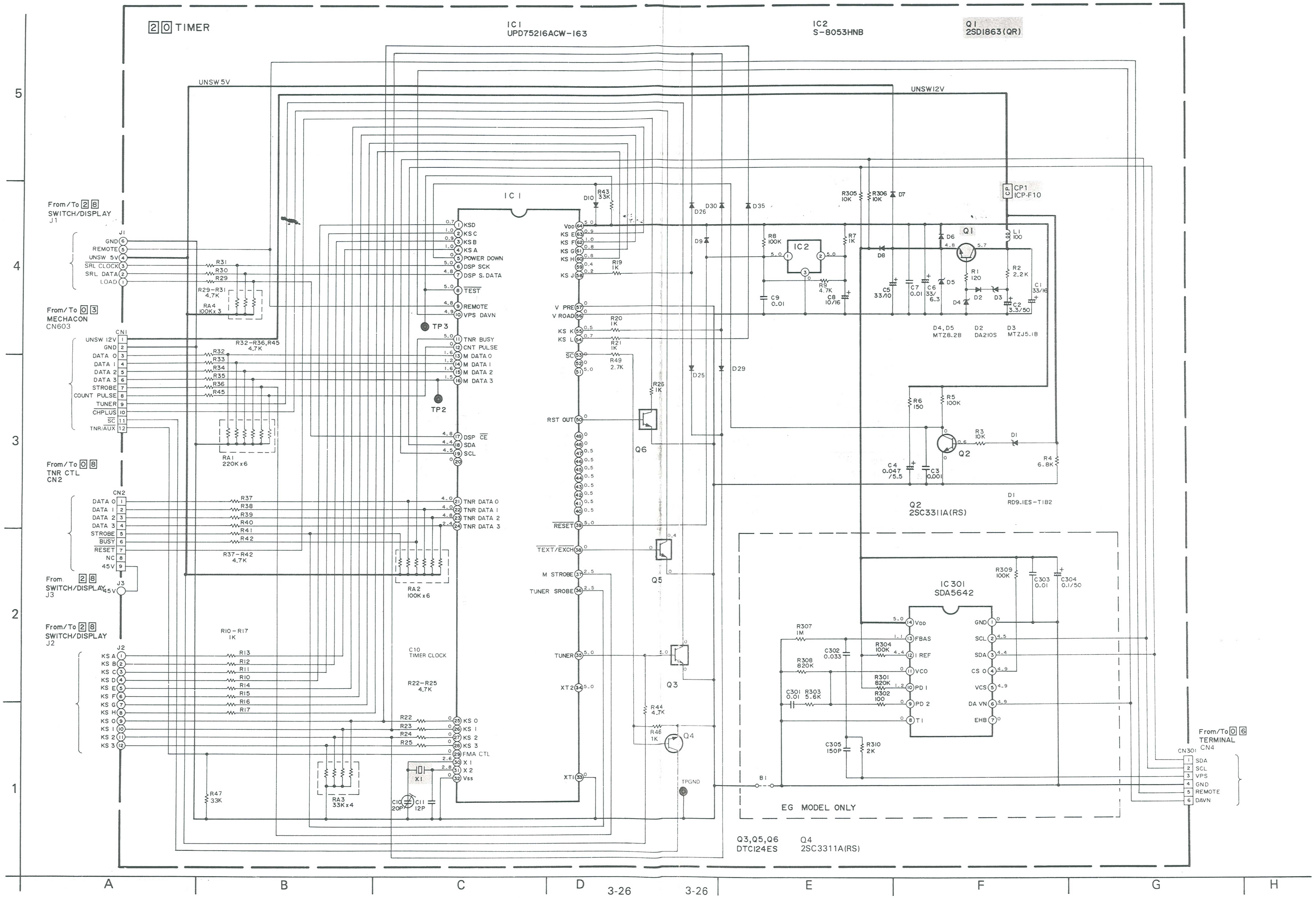
CN1
SIF 1
GND 2
AUDIO 3
MUTE 4
SWD 12V 5
MUTE 6
FROM 0 8 TNR CTL CN5
R2 SEPARATION ADJ
IC 1 TDA3800GS
C20 10/16
R2 10K
C2 0.0039
C3 0.0039
C4 0.0039
C1 10/16
C5 10/16
C6 10/16
R3 15K
C7 47/16
R1 10K
Q1 DTC114ES
OUTPUT SW
CONTROL LOGIC
MATRIX
IC 1
COMP
SIF AMP
FM DET
PILOT AMP
PILOT DET
L1
R1
L2
R2
VCC
GND
D1
R4 330
R6 1K
C10 0.001
R10 27K
C8 0.022
R5 820
C9 0.047
C11 470/16
C12 0.047
C13 10/16
C14 10/16
CF1 5.74MHZ
CF2 5.74MHZ
T1 5.74MHZ
T2 54.7KHZ
SOUND AUDIO DET BUZZ
Q2 2SD1292(QR)
R9 270
C15 33/16
C16 100/16
BPF 1
BPF 274.1HZ
BPF 117.5HZ
VCC
CEXT
GND
C17 1/50
R7 100K
R8 150K
Q3 DTC114ES
Q4 DTC114ES
Q7 DTC144ES
Q8 DTC114ES
R11 10K
R12 10K
R15 10K
R16 10K
R17 10K
D2
D3
D4
D6
C18 47/16
R13 10K
R14 10K
Q5 DTC114ES
Q6 DTC114ES
TO 2 8 SW/DISPLAY CN104
CN3
1 BILINGUAL CTL
2 BILINGUAL CTL
3 BILINGUAL LED
4 STEREO LED
TO 0 9 AUDIO CN8
CN2
1 BILINGUAL CTL
2 AUDIO(L)
3 GND
4 AUDIO(R)
R21 AUDIO L LEVEL
R21 3.3K
Q9 2SD1450S.T
R22 2.2K
R23 10K
R24 AUDIO R LEVEL
R24 3.3K
Q10 2SD1450S.T
R25 2.2K
R26 10K
1 4 DEMODULATOR
1
2
3
4
5
A
B
C
D
E
F
G
H

3.26 DEMODULATOR CIRCUIT BOARD


R2
STEREO
SEPARATION
R24
AUDIO OUTPUT
LEVEL (R)
T1
SOUND AUDIO DET
T2
BUZZ
R21
AUDIO OUTPUT
LEVEL (L)
PB20240A
DEMOD PWB ASS'Y
PB20240 DEMOD PWB
CMK-77X
IC1
CN1
CN2
CN3
BPF1
CF1
CF2
1
2
3
4
5
A
B
C
D
E
F
G
H

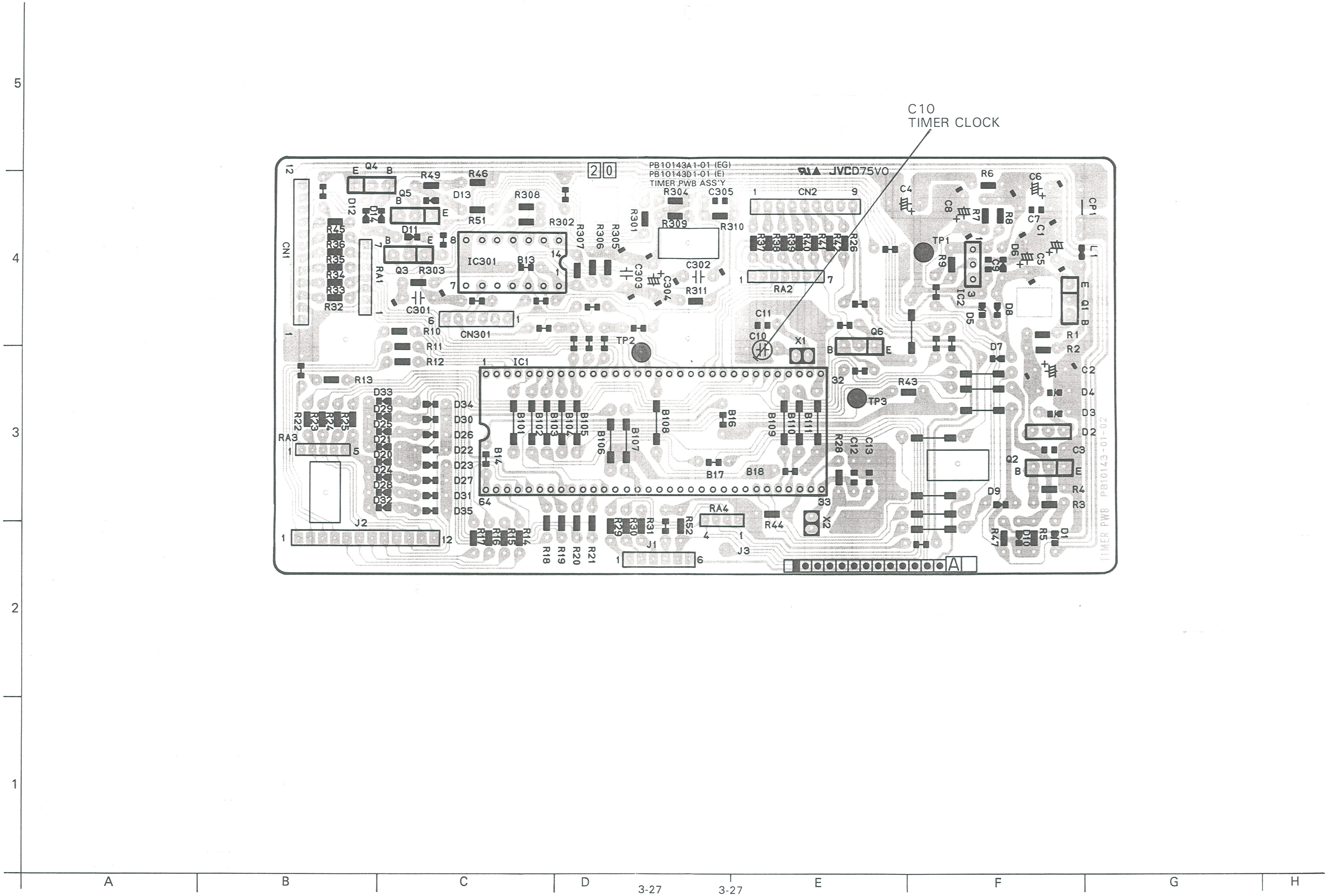
3.27 TIMER SCHEMATIC DIAGRAM

NOTE: Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

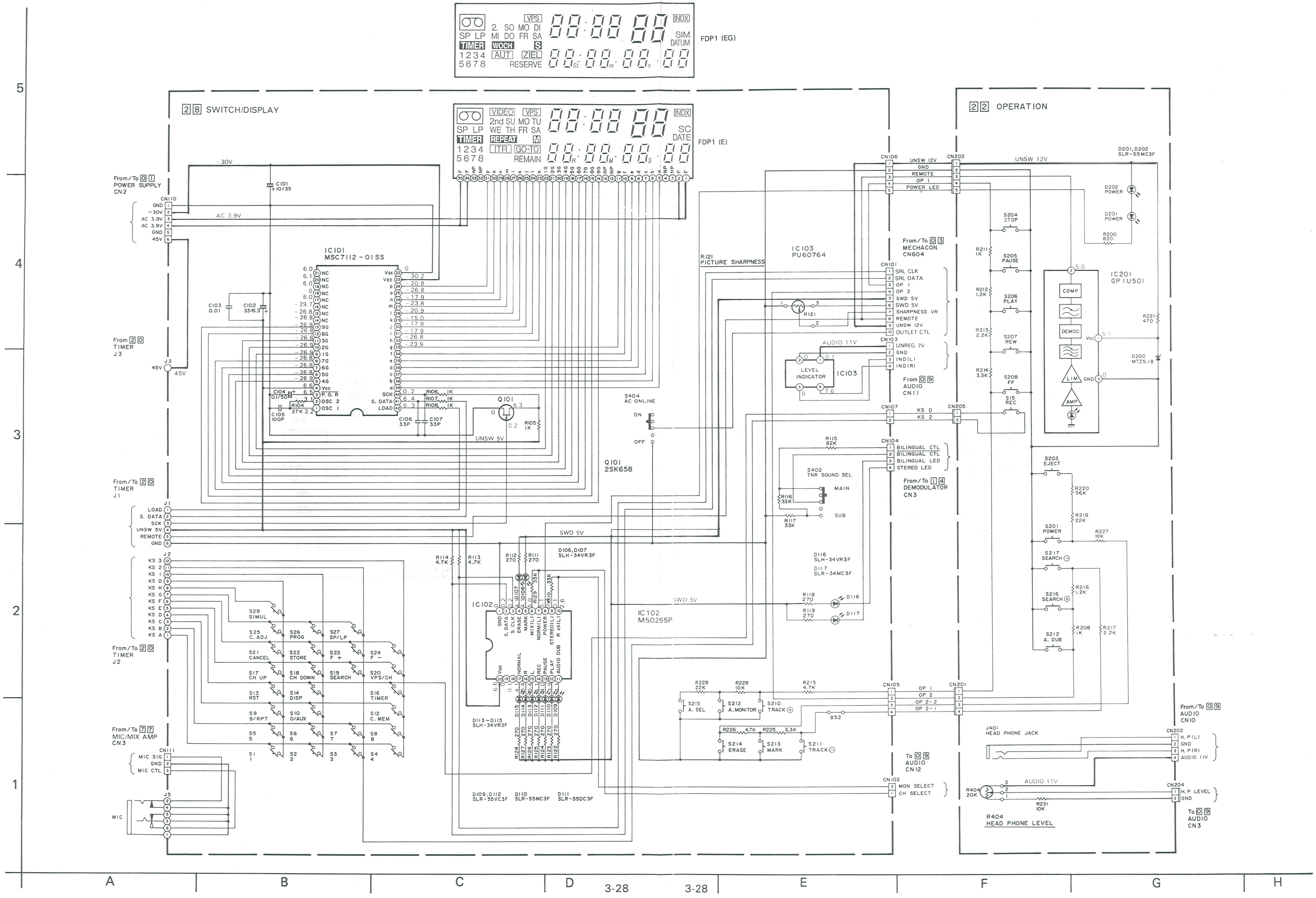


20 TIMER
IC1
UPD75216ACW-163
IC2
S-8053HNB
Q1
2SD1863(QR)
UNSW5V
UNSW12V
From/To 28
SWITCH/DISPLAY
J1
GND
REMOTE
UNSW 5V
SRL CLOCK
SRL DATA
LOAD
R31
R30
R29
R29-R31
4.7K
RA4
100Kx3
From/To 03
MECHACON
CN603
CN1
UNSW 12V
GND
DATA 0
DATA 1
DATA 2
DATA 3
STROBE
COUNT PULSE
TUNER
CHPLUS
SC
TNR/AUX
R32-R36,R45
4.7K
R32
R33
R34
R35
R36
R45
RA1
220Kx6
From/To 08
TNR CTL
CN2
DATA 0
DATA 1
DATA 2
DATA 3
STROBE
BUSY
RESET
NC
45V
R37
R38
R39
R40
R41
R42
R37-R42
4.7K
From 28
SWITCH/DISPLAY
J3
45V
RA2
100Kx6
From/To 28
SWITCH/DISPLAY
J2
KS A
KS B
KS C
KS D
KS E
KS F
KS G
KS H
KS 0
KS 1
KS 2
KS 3
R10-R17
1K
R13
R12
R11
R10
R14
R15
R16
R17
R47
33K
RA3
33Kx4
C10
TIMER CLOCK
R22-R25
4.7K
R22
R23
R24
R25
X1
C10
20P
C11
12P
TP3
TP2
IC1
KSD
KSC
KSB
KSA
POWER DOWN
DSP SCK
DSP S.DATA
TEST
REMOTE
VPS DAVN
TNR BUSY
CNT PULSE
M DATA 0
M DATA 1
M DATA 2
M DATA 3
DSP CE
SDA
SCL
TNR DATA 0
TNR DATA 1
TNR DATA 2
TNR DATA 3
KS 0
KS 1
KS 2
KS 3
FMA CTL
X1
X2
Vss
VDD
KS E
KS F
KS G
KS H
KS J
V PRE
V ROAD
KS K
KS L
SC
RST OUT
RESET
TEXT/EXCH
M STROBE
TUNER SROBE
TUNER
XT2
XT1
D10
R43
33K
R19
1K
R20
1K
R21
1K
R49
2.7K
R26
1K
Q6
Q5
Q3
Q4
R44
4.7K
R46
1K
TPGND
D26
D30
D35
D9
D25
D29
R305
10K
R306
10K
D7
R8
100K
IC2
R7
1K
R9
4.7K
C8
10/16
C9
0.01
D8
C5
33/10
C7
0.01
C6
33/6.3
D6
D5
Q1
R1
120
D4
D2
D3
R2
2.2K
C1
33/16
C2
3.3/50
CP1
ICP-F10
L1
100
D4, D5
MTZ8.2B
D2
DA210S
D3
MTZJ5.1B
R6
150
R5
100K
R3
10K
D1
Q2
R4
6.8K
C4
0.047/5.5
C3
0.001
Q2
2SC3311A(RS)
D1
RD9.1ES-T1B2
IC301
SDA5642
R309
100K
C303
0.01
C304
0.1/50
VDD
FBAS
I REF
VCO
PD 1
PD 2
TI
GND
SCL
SDA
CS 0
VCS
DA VN
EHB
R307
1M
R304
100K
C302
0.033
R308
820K
R301
820K
R302
100
C301
0.01
R303
5.6K
C305
150P
R310
2K
B1
EG MODEL ONLY
From/To 06
TERMINAL
CN4
CN301
SDA
SCL
VPS
GND
REMOTE
DAVN
Q3,Q5,Q6
DTC124ES
Q4
2SC3311A(RS)
1
2
3
4
5
A
B
C
D
E
F
G
H

3.28 TIMER CIRCUIT BOARD


C10
TIMER CLOCK
PB10143A1-01 (EG)
PB10143D1-01 (E)
TIMER PWB ASS'Y
JVC D75V0
IC1
IC301
CN1
CN2
CN301
J1
J2
J3
TP1
TP2
TP3
X1
X2
5
4
3
2
1
A
B
C
D
E
F
G
H

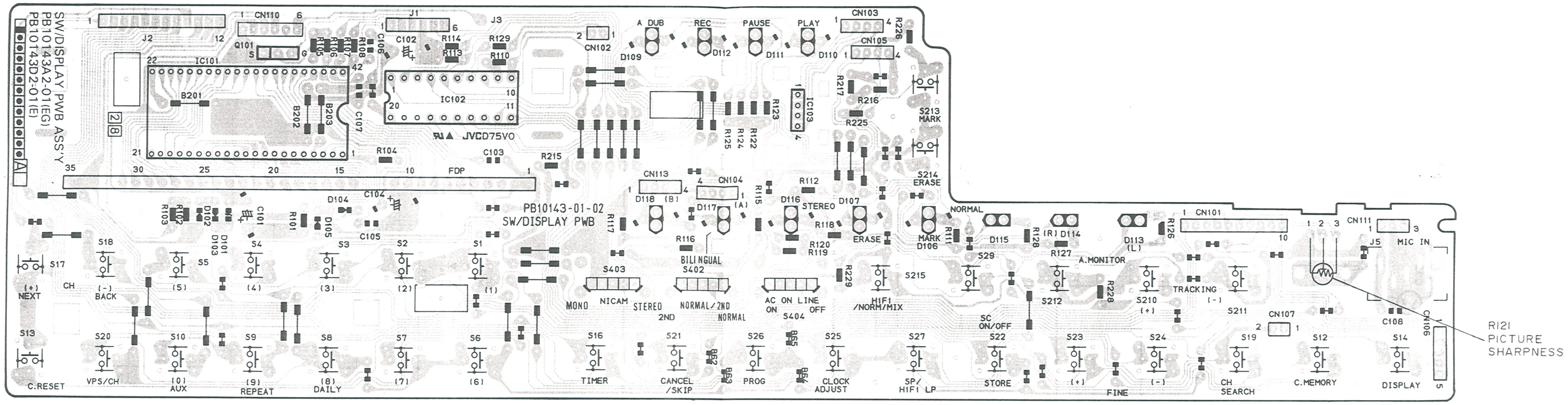
3.29 SWITCH/DISPLAY AND OPERATION SCHEMATIC DIAGRAMS



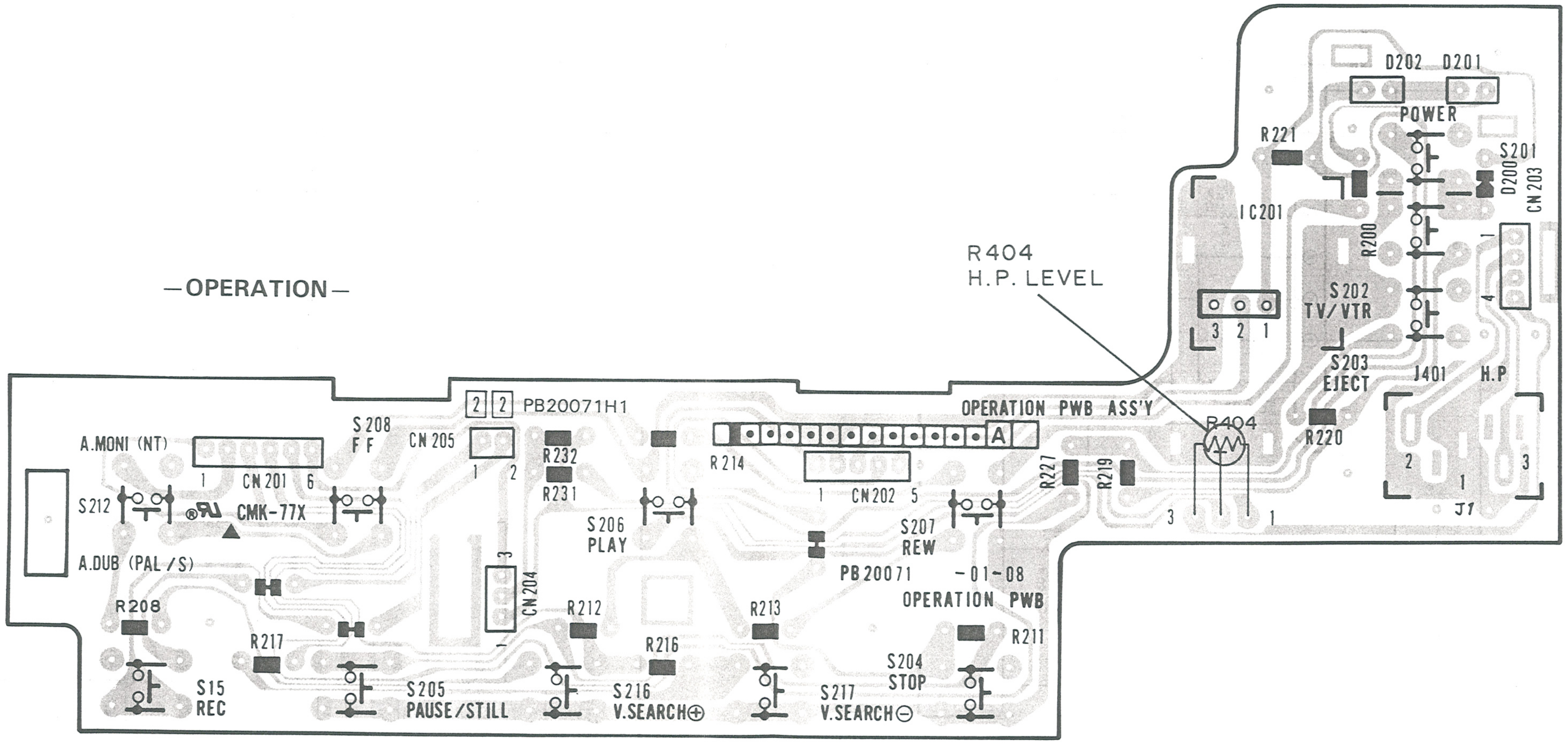
FDP1 (EG)
VPS
2. SO MO DI
SP LP MI DO FR SA
TIMER WOCH S
1234 AUT ZIEL
5678 RESERVE
INDX
SIM
DATUM
28 SWITCH/DISPLAY
FDP1 (E)
VIDEO VPS
2nd SU MO TU
SP LP WE TH FR SA
TIMER REPEAT M
1234 ITR GO-TO
5678 REMAIN
SC
DATE
22 OPERATION
From/To 01 POWER SUPPLY CN2
CN110
GND
-30V
AC 3.9V
AC 3.9V
GND
45V
-30V
C101 10/35
AC 3.9V
IC101 MSC7112-01SS
C103 0.01
C102 33/6.3
C104 0.1/50
R104 27K
C105 100P
C106 33P
C107 33P
R106 1K
R107 1K
R108 1K
Q101
R105 1K
UNSW 5V
Q101 2SK658
From 20 TIMER J3
45V
From/To 20 TIMER J1
LOAD
S. DATA
SCK
UNSW 5V
REMOTE
GND
KS 3
KS 2
KS 1
KS 0
KS H
KS G
KS F
KS E
KS D
KS C
KS B
KS A
From/To 20 TIMER J2
S29 SIMUL
S25 C. ADJ
S26 PROG
S27 SP/LP
S21 CANCEL
S22 STORE
S23 F +
S24 F -
S17 CH UP
S18 CH DOWN
S19 SEARCH
S20 VPS/CH
S13 RST
S14 DISP
S16 TIMER
S9 9/RPT
S10 0/AUX
S12 C. MEM
S5 5
S6 6
S7 7
S8 8
S1 1
S2 2
S3 3
S4 4
From/To 77 MIC/MIX AMP CN3
CN111
MIC SIG
GND
MIC CTL
J5
MIC
R114 4.7K
R113 4.7K
R112 270
R111 270
D106, D107 SLH-34VR3F
SWD 5V
IC102
IC102 M50255P
D113~D115 SLH-34VR3F
D109, D112 SLR-55VC3F
D110 SLR-55MC3F
D111 SLR-55DC3F
R121 PICTURE SHARPNESS
IC103 PU60764
S404 AC ONLINE
ON
OFF
AUDIO 11V
LEVEL INDICATOR
IC103
R115 82K
S402 TNR SOUND SEL
MAIN
SUB
R116 33K
R117 33K
D116 SLH-34VR3F
D117 SLR-34MC3F
R118 270
R119 270
D116
D117
R229 22K
R228 10K
R215 4.7K
S215 A. SEL
S212 A.MONITOR
S210 TRACK ⊕
R226 4.7K
R225 3.3K
S214 ERASE
S213 MARK
S211 TRACK ⊖
CN106
UNSW 12V
GND
REMOTE
OP 1
POWER LED
CN202
From/To 03 MECHACON CN604
CN101
SRL CLK
SRL DATA
OP 1
OP 2
SWD 5V
SWD 5V
SHARPNESS VR
REMOTE
UNSW 12V
OUTLET CTL
CN103
UNREG 7V
GND
IND(L)
IND(R)
From 09 AUDIO CN11
CN107
KS D
KS 2
CN205
CN104
BILINGUAL CTL
BILINGUAL CTL
BILINGUAL LED
STEREO LED
From/To 14 DEMODULATOR CN3
CN105
OP 1
OP 2
OP 2-2
OP 2-1
CN201
To 09 AUDIO CN12
CN102
MON SELECT
CH SELECT
D201, D202 SLR-55MC3F
D202 POWER
D201 POWER
R200 820
S204 STOP
S205 PAUSE
S206 PLAY
S207 REW
S208 FF
S15 REC
R211 1K
R212 1.2K
R213 2.2K
R214 3.3K
IC201 GP1U501
COMP
DEMOD
LIM
AMP
R221 470
D200 MTZ5.1B
S203 EJECT
R220 56K
R219 22K
S201 POWER
R227 10K
S217 SEARCH ⊖
S216 SEARCH ⊕
R216 1.2K
S212 A. DUB
R208 1K
R217 2.2K
From/To 09 AUDIO CN10
J401 HEAD PHONE JACK
CN203
H. P(L)
GND
H. P(R)
AUDIO 11V
R404 20K
R231 10K
CN204
H.P LEVEL
GND
R404 HEAD PHONE LEVEL
To 09 AUDIO CN3
1
2
3
4
5
A
B
C
D
E
F
G
H

3.30 SWITCH/DISPLAY AND OPERATION CIRCUIT BOARDS

—SWITCH/DISPLAY—

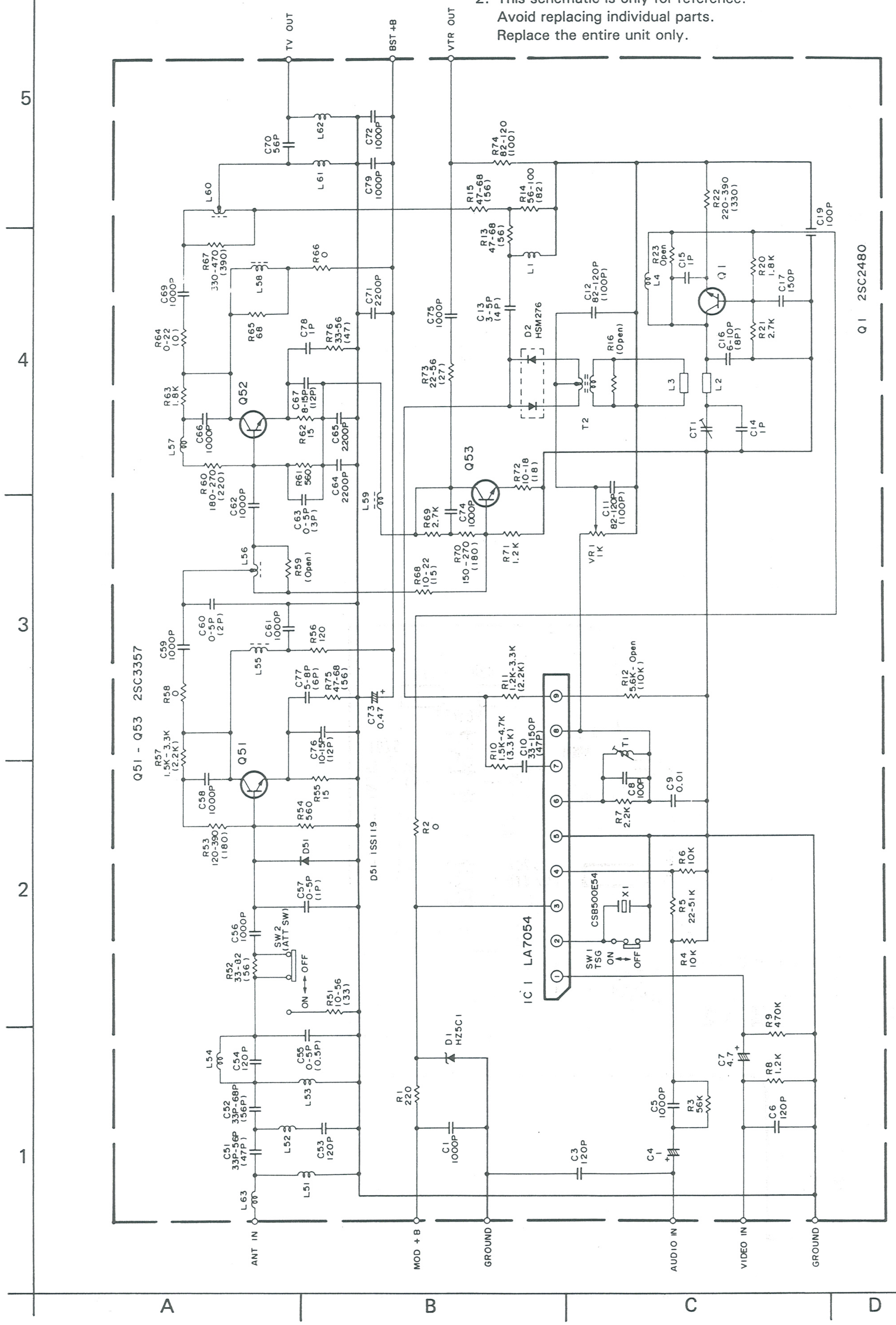

SW/DISPLAY PWB ASS'Y
PB10143A2-01(EG)
PB10143D2-01(E)
PB10143-01-02
SW/DISPLAY PWB
IC101
IC102
IC103
JVCD75VO
FDP
CN110
CN113
CN104
CN103
CN105
CN101
CN111
CN107
CN106
J1
J2
J3
J5
MIC IN
A DUB
REC
PAUSE
PLAY
S213
MARK
S214
ERASE
NORMAL
STEREO
ERASE
MARK
A.MONITOR
TRACKING
S17
(+)
NEXT
CH
S18
(-)
BACK
S5
(5)
S4
(4)
S3
(3)
S2
(2)
S1
(1)
S403
MONO
NICAM
STEREO
2ND
S402
BILINGUAL
NORMAL/2ND
NORMAL
AC ON LINE
ON
OFF
S404
S215
HIFI
/NORM/MIX
S29
S212
S210
(+)
(-)
S211
SC
ON/OFF
S13
C.RESET
S20
VPS/CH
S10
(0)
AUX
S9
(9)
REPEAT
S8
(8)
DAILY
S7
(7)
S6
(6)
S16
TIMER
S21
CANCEL
/SKIP
S26
PROG
S25
CLOCK
ADJUST
S27
SP/
HIFI LP
S22
STORE
S23
(+)
FINE
S24
(-)
S19
CH
SEARCH
S12
C.MEMORY
S14
DISPLAY
R121
PICTURE
SHARPNESS

—OPERATION—


R404
H.P. LEVEL
D202
D201
POWER
R221
S201
D200
CN203
IC201
R200
S202
TV/VTR
S203
EJECT
J401
H.P
R220
J1
PB20071H1
OPERATION PWB ASS'Y
A.MONI (NT)
CN201
S208
FF
CN205
R232
R231
R214
CN202
R227
R219
S212
CMK-77X
A.DUB (PAL/S)
S206
PLAY
S207
REW
PB20071 -01-08
OPERATION PWB
CN204
R208
R217
R212
R216
R213
R211
S15
REC
S205
PAUSE/STILL
S216
V.SEARCH⊕
S217
V.SEARCH⊖
S204
STOP

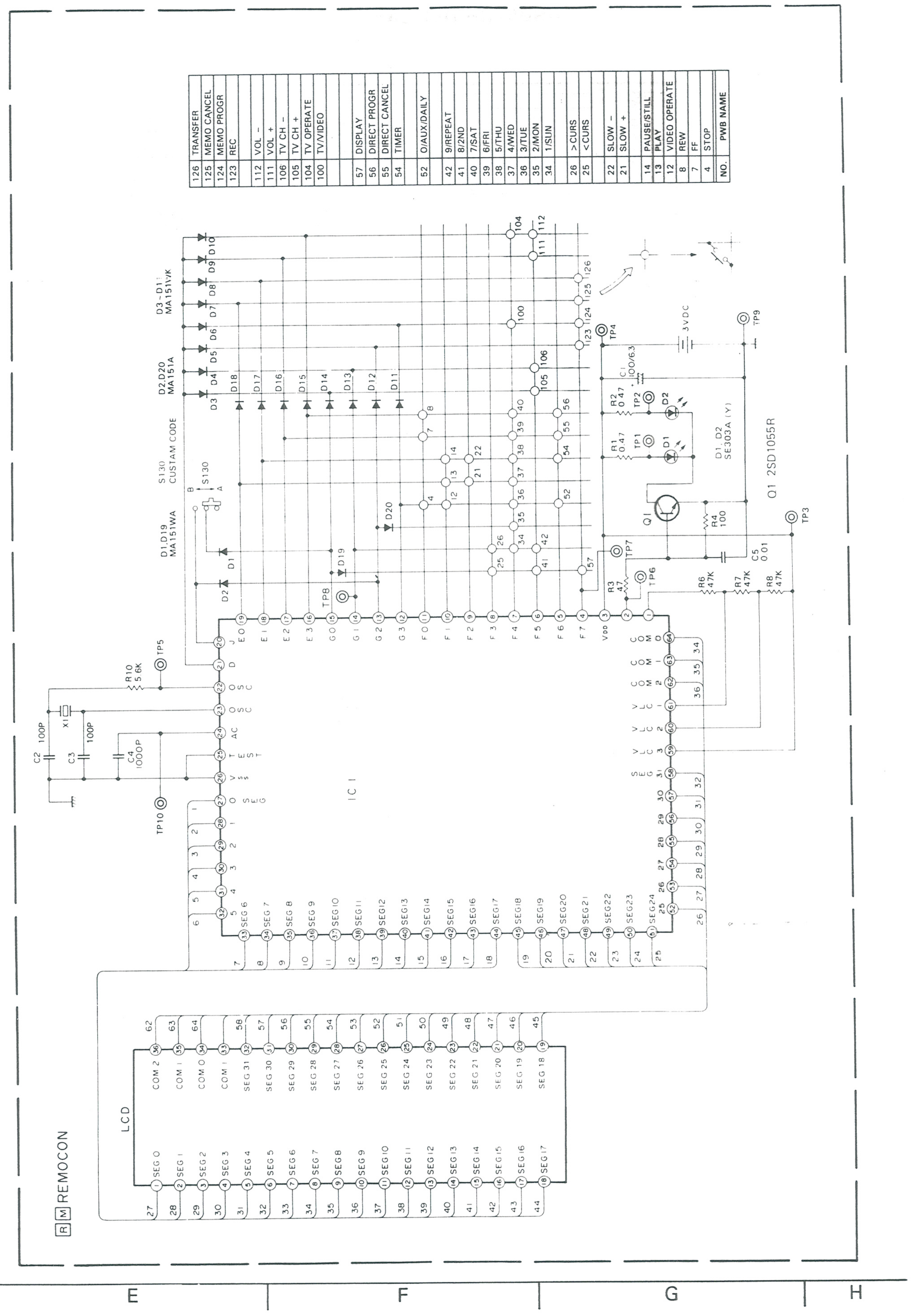
3.31 RF CONVERTOR AND MIX BOOSTER SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


TV OUT
BST +B
VTR OUT
ANT IN
MOD + B
GROUND
AUDIO IN
VIDEO IN
GROUND
Q51 - Q53 2SC3357
Q1 2SC2480
D51 1SS119
IC 1 LA7054
CSB500E54
SW1 TSG
SW2 (ATT SW)
ON ↔ OFF
D1 HZ5C1
Q51
Q52
Q53
D2 HSM276
T2
VR1 1K
5
4
3
2
1
A
B
C

3.32 REMOTE CONTROL SCHEMATIC DIAGRAM

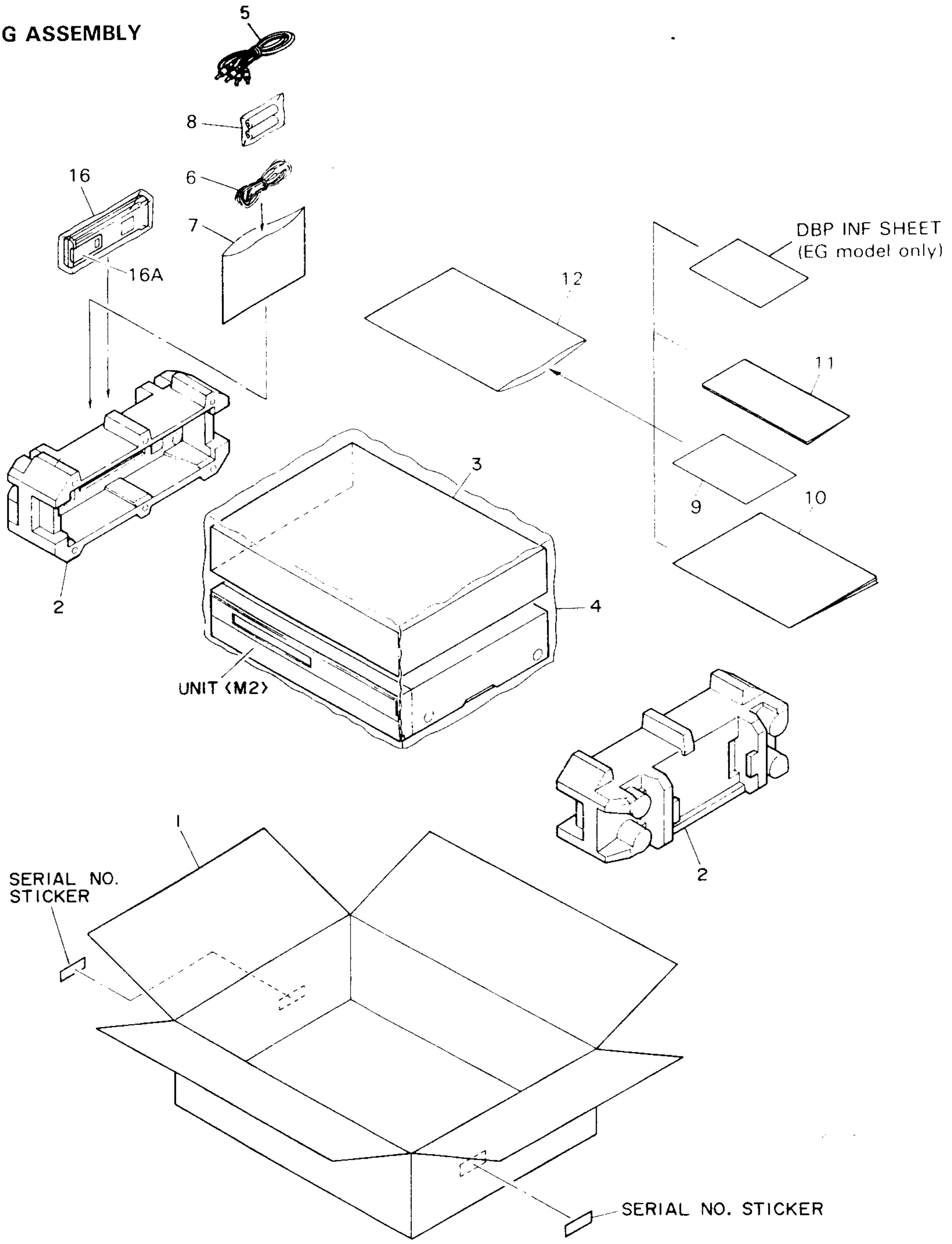
NOTES: 1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entrie unit only.


D3 - D11 MA151VK
D2,D20 MA151A
S130 CUSTAM CODE
D1,D19 MA151WA
D1, D2 SE303A (Y)
Q1 2SD1055R
IC 1
LCD
RM REMOCON
3VDC
D
E
F
G
H

NO.	PWB NAME
126	TRANSFER
125	MEMO CANCEL
124	MEMO PROGR
123	REC
112	VOL –
111	VOL +
106	TV CH –
105	TV CH +
104	TV OPERATE
100	TV/VIDEO
57	DISPLAY
56	DIRECT PROGR
55	DIRECT CANCEL
54	TIMER
52	0/AUX/DAILY
42	9/REPEAT
41	8/2ND
40	7/SAT
39	6/FRI
38	5/THU
37	4/WED
36	3/TUE
35	2/MON
34	1/SUN
26	>CURS
25	<CURS
22	SLOW –
21	SLOW +
14	PAUSE/STILL
13	PLAY
12	VIDEO OPERATE
8	REW
7	FF
4	STOP

SECTION 4
EXPLODED VIEWS AND PARTS LIST

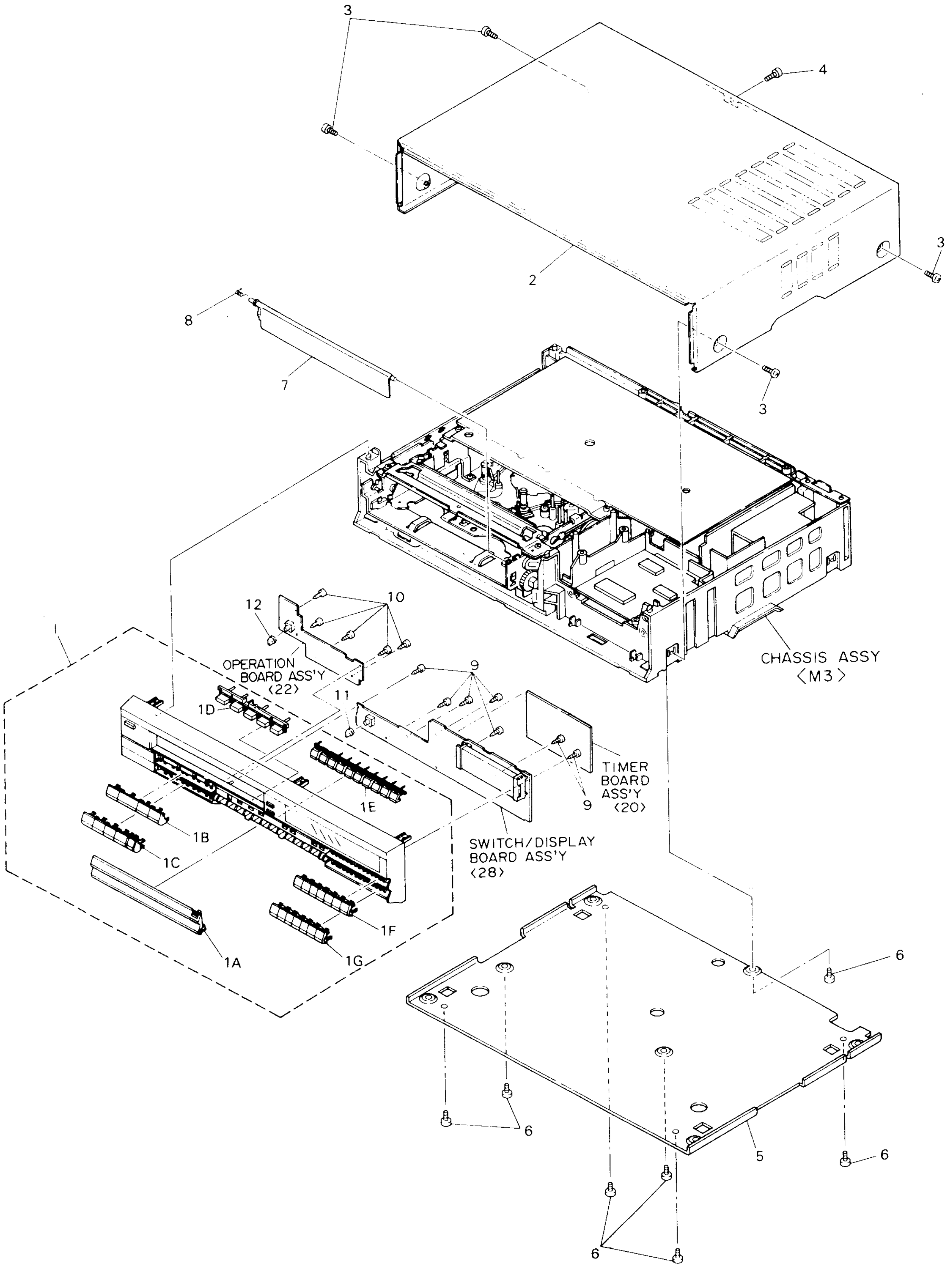
4.1 PACKING ASSEMBLY


5
8
16
6
7
16A
DBP INF SHEET
(EG model only)
12
11
3
9
10
2
4
UNIT <M2>
2
1
SERIAL NO.
STICKER
SERIAL NO. STICKER

* 1. PACKING ASSEMBLY <M1> *

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	1	PQ31705-186	PACKING CASE ,E
		PQ31705-179	PACKING CASE, EG
	2	PQ31996F-3	CUSHION ASSY
	3	PQ41026-10	PROTECT SHEET
	4	PQM30021-59-11	POLY BAG
	5	PU56142-3	PIN CORD ASSY
⚠	6	PU59168-3	RF CABLE
⚠		OR PU59167-3	RF CABLE
	7	QPGA020-02003	POLY BAG
	8	UM-3DJ2P	BATTERY
	9	BT-20069A	WARRANTY CARD, EG
⚠	10	PU30425-995	INSTRUCTIONS,E
⚠		PU30425-993	INSTRUCTIONS, EG
	11	TCN-3379	TAPE CATALOG
	12	QPGA025-03505	POLY BAG
⚠	16	PQ10543BD	REMOTE CONTROLLER,E
⚠		PQ10543BB-33	REMOTE CONTROLLER,EG
	16A	PQ31449	BATTERY CAP

4.2 CABINET ASSEMBLY <M2>



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CHASSIS ASSY
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OPERATION
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BOARD
ASS'Y
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BOARD ASS'Y
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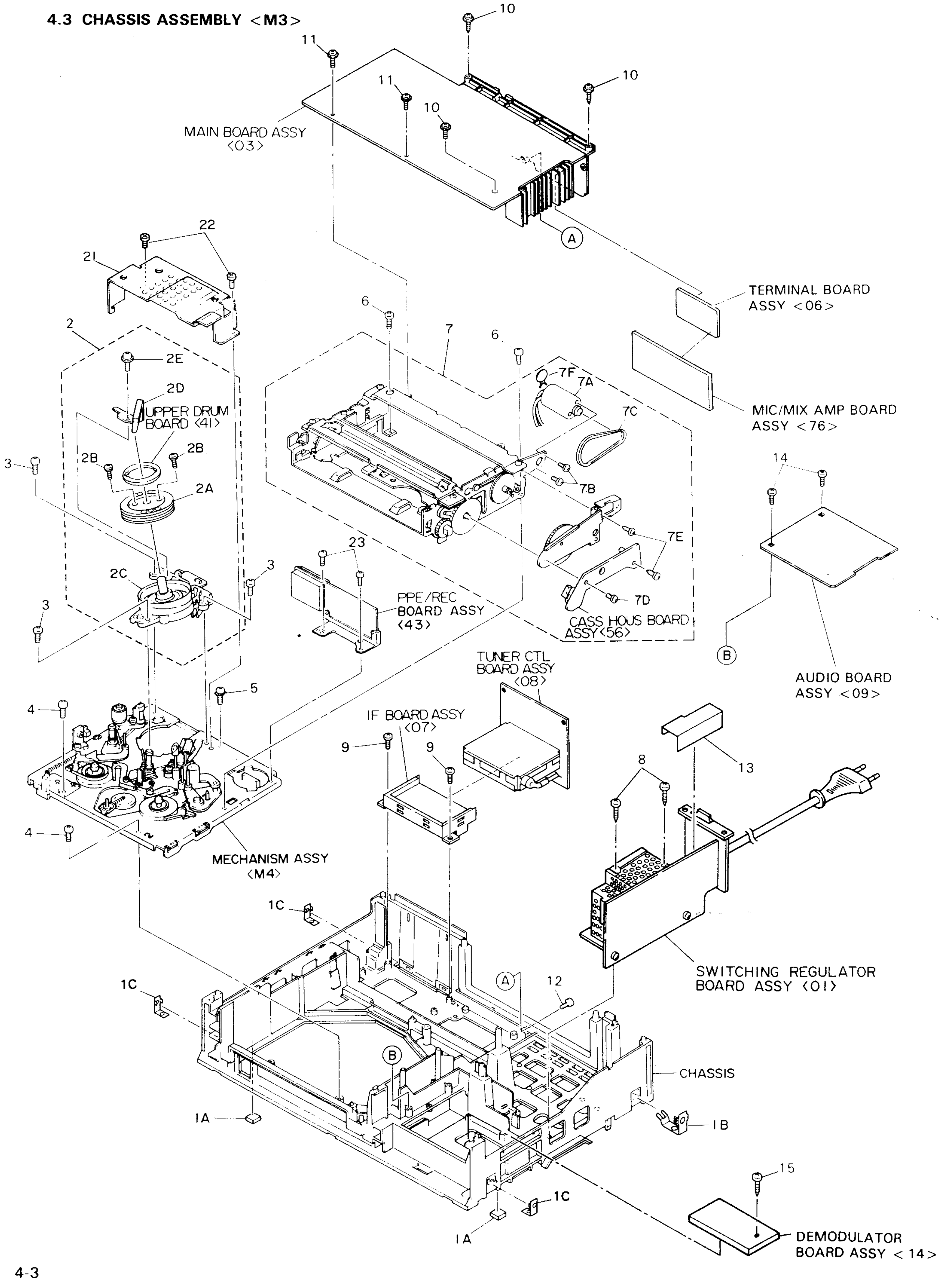
2. CABINET ASSEMBLY <M2>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	1	PQ10710A-7	FRONT PANEL ASSY,FOR EG
		PQ10710C-6	FRONT PANEL ASSY,FOR E
	1A	PQ20442-10-13	DOOR,EG
		PQ20442-12	DOOR,E
	1B	PQ31729-8	BUTTON(OPE),EG
		PQ31729-10	BUTTON(OPE),E
	1C	PQ20493-9	BUTTON(OPE),E
		PQ20493-7	BUTTON(OPE),EG
	1D	PQ32468	BUTTON(CONT.)
	1E	PQ20443-9-9	BUTTON(PROG.),EG
		PQ20443-10	BUTTON(PROG.),E
	1F	PQ31734-18	BUTTON(TEN KEY),E
		PQ31734-16	BUTTON(TEN KEY),EG
	1G	PQ31734-20	BUTTON(TEN KEY),E
		PQ31734-17-8	BUTTON(TEN KEY),EG
⚠	2	PQ10473-2-5	TOP COVER
	3	SDSA4014M	TAPPING SCREW,X4
	4	SDSF3010M	TAPPING SCREW
⚠	5	PQ10472-1-2	BOTTOM COVER
	6	SDSF3008Z	TAPPING SCREW,X5
	7	PQ31819-7-4	C.HOUSING DOOR
	8	PQ42410-1-1	TORSION SPRING
	9	SDSF2608Z	TAPPING SCREW,X7
	10	SDSF2608Z	TAPPING SCREW,X5
	11	PQ43081	KNOB, PICTURE SHARPNESS
	12	PQ43082	KNOB, PHONE LEVEL

3. CHASSIS ASSEMBLY <M3>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	1A	PQ43013	FOOT, X2
	1B	PQ43023	EARTH PLATE
	1C	PQ43011	EARTH PLATE, X3
⚠	2	PDV2143A	DRUM ASSY
	2A	PDM2112A	UPPER DRUM ASSY
	2B	PDM4165A	DRUM SCREW ASSY, X2
	2C	PDM2101K-3	LOWER DRUM MOTOR ASSY
	2D	PDM4015B	BRUSH ASSY
	2E	LPSP2606Z	SCREW
	3	SDSP2608Z	SCREW, X3 DRUM
	4	SDSA4014Z	TAPPING SCREW, X2, M. DECK
	5	PQ41396	SPECIAL SCREW, M. DECK
	6	SDST2605Z	TAPPING SCREW, X2 C. HOUSING
	7	PUS28277H	CASS.HOUSING ASSY
⚠	7A	PQ42385A	CASSETTE MOTOR ASSY
⚠	OR	PQ42385B	CASSETTE MOTOR ASSY
	7B	SPSP2603Z	SCREW, X2
	7C	PQM30003-19	BELT
	7D	SPSP2604Z	SCREW
	7E	SPST2605Z	TAPPING SCREW, X2
	7F	DV710SR223M16	VARISTOR
	8	SDSA4012Z	TAPPING SCREW, X2 P. TRANS
	9	SDSF3008Z	TAPPING SCREW, X2 TUNER BOARD
	10	GPSF2610Z	TAPPING SCREW, X3 MAIN BOARD
	11	GPST2608Z	SCREW, X2 MAIN BOARD
	12	SDSF3010M	TAPPING SCREW, T. BORAD
⚠	13	PU60728-1-1	AC COVER
	14	SDSF3008Z	TAPPING SCREW, X2, AUDIO BOARD
	15	SDSF3008Z	TAPPING SCREW, DEMOD. BOARD
	21	PQ31171-4	DRUM SHIELD
	22	SDST2605Z	TAPPING SCREW, X2 D. SHIELD
	23	SDST2605Z	TAPPING SCREW, X2 P. REC BOARD

4.3 CHASSIS ASSEMBLY <M3>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MIC/MIX AMP BOARD ASSY <76>
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TUNER CTL BOARD ASSY <08>
AUDIO BOARD ASSY <09>
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MECHANISM ASSY <M4>
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SWITCHING REGULATOR BOARD ASSY <01>
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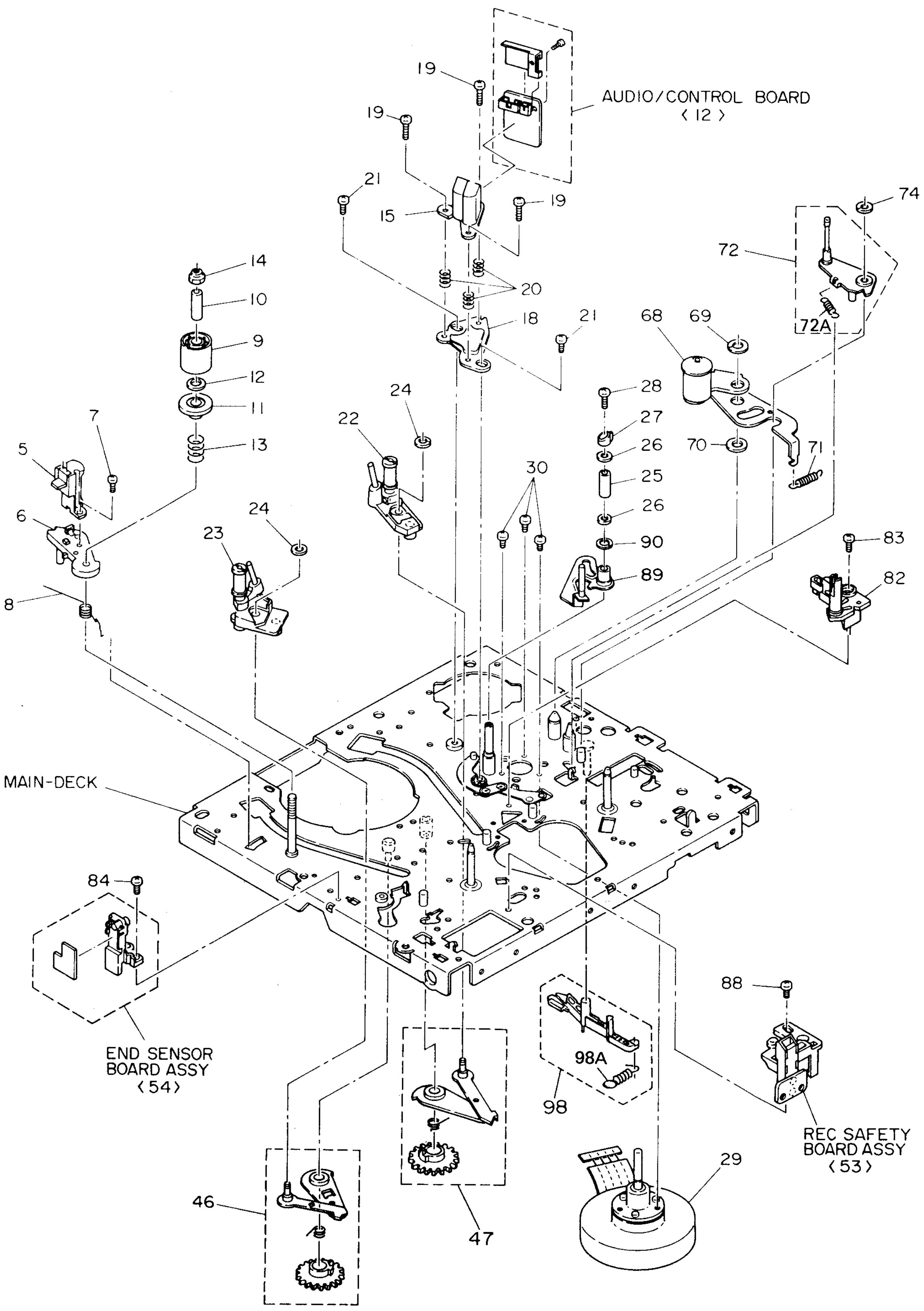
DEMODULATOR BOARD ASSY <14>

4.4 MECHANISM ASSEMBLY <M4>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BOARD ASSY
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BOARD ASSY
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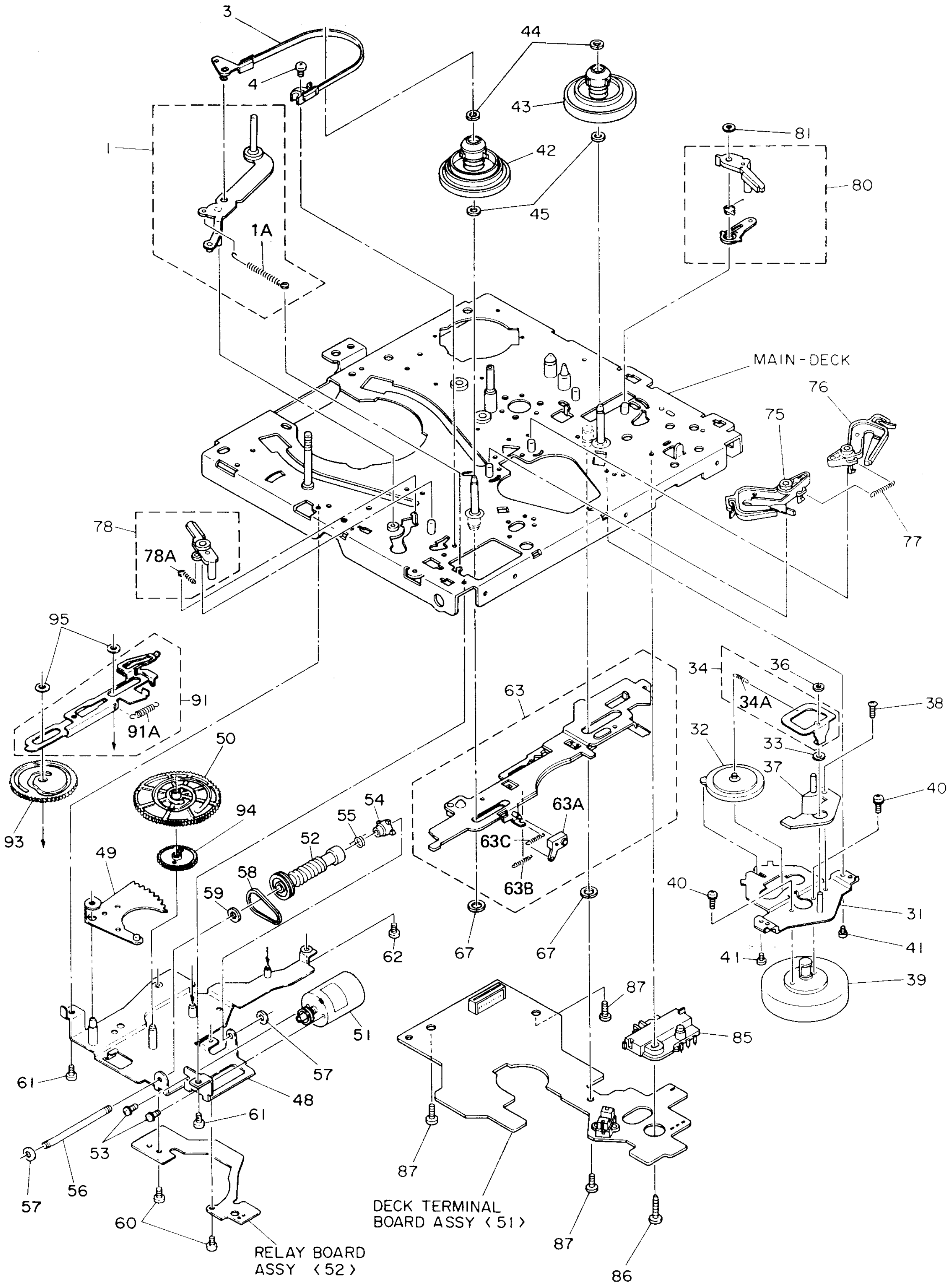
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DECK TERMINAL
BOARD ASSY <51>
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86
RELAY BOARD
ASSY <52>

4. MECHANISM ASSEMBLY <M4>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	1	PQ41944A-7	TENSION ARM ASSY
	1A	PQ41952-3	SPRING
	3	PQ41948A	TENSION BAND ASSY
	4	SDST2606Z	TAPPING SCREW
	5	PU57641-2	FULL ERASE HEAD
	6	PQ31036	FULL ERASE HEAD BASE
	7	SPSG2606Z	SCREW
	8	PQ41954-1-1	TORSION SPRING
	9	PQ41955	IMPEDANCE ROLLER
	10	PQ41956	COLLAR
	11	PQ41957	LOWER FLANGE
	OR	PQ42958	LOWER FLANGE
	12	PQM30018-39	SPACER
	OR	PQM30018-50	SPACER
	13	PQM30002-124	COMPRESSION SPRING
	14	PQ40353	NYLON NUT
	15	PU60560	AUDIO/CONTROL HEAD
	18	PQ42984-2	HEAD BASE
	19	SPSP2608Z	SCREW, X3
	20	PU30080-49	SPRING, X3
	21	SDSP2606Z	SCREW,X2
	22	PU60557	POLE BASE ASSY(TAKE-UP)
	OR	PU59994	POLE BASE ASSY(TAKE-UP)
	23	PU60556	POLE BASE ASSY(SUPPLY)
	OR	PU59993	POLE BASE ASSY(SUPPLY)
	24	PQM30017-5	SLIT WASHER,X2
	25	PU53629-3	TAPE GUIDE
	26	PQ40268-2	GUIDE FLANGE, X2
	27	PQ42999-2-1	G.POLE CAP
	28	SDSP2006Z	SCREW
⚠	29	PU60201V	CAPSTAN MOTOR
	30	SPSP2605N	SCREW,X3
	31	PQ41974A-3	REEL MOTOR BRACKET ASSY
	32	PU58645-1-4	IDLER ARM
	33	Q03093-834	WASHER
	34	PQ41976A-1	SP ARM ASSY
	34A	PQ42212-1-4	SPRING
	36	PQM30017-22	SLIT WASHER
	37	PQ41978	HOLDER
	38	SPST2606Z	SCREW
⚠	39	PU59926V	REEL MOTOR
	40	LPSP2604Z	SCREW,X2
	41	SPST2606Z	SCREW,X2
	42	PU59250-1-2	REEL DISK (SUPPLY)
	43	PU58638-1-2	REEL DISK (TAKE-UP)
	44	PQM30017-5	SLIT WASHER,X2
	45	Q03093-828	WASHER,X2
	46	PQ41979A-5	LOADING ARM ASSY (SUPPLY)
	47	PQ41985B-3	LOADING ARM ASSY (TAKE-UP)
	48	PQ42973A	CAM BRACKET.ASSY
	49	PQ41994A-3	ARM GEAR ASSY
	50	PQ20577	CONTROL CAM
	51	PQ41996B	MODE MOTOR ASSY
	OR	PQ41996C	MODE MOTOR ASSY
	52	PQ41998A	WORM ASSY
	53	LPSP2604Z	SCREW,X2
	54	PQ42001	WINDMILL
	55	PQ42002	CLUTCH SPRING
	56	PQ42003	WORM SHAFT
	57	PQM30017-5	SLIT WASHER,X2
	58	PQM30003-20	BELT
	59	PQM30018-22	SPACER
	60	SPST2606Z	SCREW,X2
	61	SPST2606Z	SCREW,X2
	62	SPSP2603Z	SCREW
	63	PQ42038C	PLATE ASSY
	63A	PQ31044-1-2	LOCK LEVER
	63B	PQM30001-223	TENSION SPRING
	63C	PQM30001-211	TENSION SPRING
	67	PQM30017-28	SLIT WASHER, X2
	68	PQ42006B	PINCH ROLLER ARM ASSY
	69	PQM30017-28	SLIT WASHER
	70	Q03093-833	WASHER
	71	PQM30001-229	TENSION SPRING
	72	PQ42013B-4	GUIDE ARM ASSY
	72A	PQ42029	SPRING
	74	PQM30017-6	SLIT WASHER
	75	PQ42019B-6	MAIN BRAKE ASSY (SUPPLY)
	76	PQ42020B	MAIN BRAKE ASSY (TAKE-UP)
	77	PQM30001-216	TENSION SPRING
	78	PQ42021A-3	SUB BRAKE ASSY (SUPPLY)
	78A	PQ42023-1-2	TENSION SPRING
	80	PQ42037A-2	SUB BRAKE ASSY (TAKE-UP)
	81	PQM30017-6	SLIT WASHER
	82	PU59925-1-1	LED HOLDER
	83	SPST2606Z	SCREW
	84	SPST2606Z	SCREW
	85	PU60444	SLIDE SWITCH
	86	SDSP2610Z	SCREW
	87	SDSP2606Z	SCREW,X3
	88	SDST2606Z	TAPPING SCREW
	89	PQ42979A-2	HALF LOADING ARM ASSY
	90	PQM30017-29	SLIT WASHER
	91	PQ42974A	SLIDE CAM PLATE ASSEMBLY
	91A	PQM30001-224	SPRING
	93	PQ31677	HALF LOADING CAM
	94	PQ42963	SECOND GEAR
	95	PQM30017-24	SLIT WASHER,X2
	98	PQ43295A-1	MOTOR BRAKE ASSY
	98A	PQ43296	SPRING

SECTION 5
PARTS LIST

POWER SUPPLY BOARD ASSEMBLY <01>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PB20256B-01	SWITCH REG. BOARD ASSEMBLY,E
		PB20256E-01	SWITCH REG BOARD ASSEMBLY,EG
	IC1	STR10006	IC
	D1	10E6	DIODE
	D2	10E6	DIODE
	D3	10E6	DIODE
	D4	10E6	DIODE
	D5	RU1A	FR DIODE
	D6	RU1A	FR DIODE
	D7	AU01Z	FR DIODE
	D8	AU01Z	FR DIODE
	D9	AU01Z	FR DIODE
	D10	1SS133	DIODE
	D20	AU01Z	FR DIODE
	D21	F6P20F	FR DIODE
		OR FML-12S	FR DIODE
	D22	AU01Z	FR DIODE
	D23	F6P20F	FR DIODE
		OR FML-12S	FR DIODE
	D24	RD8.2EB2	ZENER DIODE
	D25	HZS39EB4TJ	ZENER DIODE
	R1	QRZ0078-2R2	W.W.RESISTOR
	R2	QRD161J-334	RESISTOR
	R3	QRD161J-334	RESISTOR
	R4	QRG029J-104	OMF RESISTOR
	R5	QRG029J-201	OMF RESISTOR
	R6	QRZ0078-R39	WW RESISTOR
	R7	QRD161J-563	RESISTOR
	R8	QRD161J-563	RESISTOR
	R9	QVZ3507-101	V RESISTOR
	R20	QRD161J-822	RESISTOR
	R21	QRD161J-333	RESISTOR
	R22	QRZ0077-100X	FUSIBLE RESISTOR
⚠	C1	QFZ9022-333	MM CAPACITOR
⚠	C2	QFZ9022-223	MM CAPACITOR
⚠	C4	QCZ9016-222M	CAPACITOR, EG
⚠	C5	QCZ9016-222M	CAPACITOR
⚠	C6	QCZ9016-222M	CAPACITOR
⚠	C7	QCZ9016-222M	CAPACITOR
⚠	C8	QCZ9016-222M	CAPACITOR
	C9	QEZ0128-107	E CAPACITOR
	C10	QCY53AK-472	CAPACITOR
	C11	QFV41HJ-474	M CAPACITOR
	C12	QFL41HJ-222	M CAPACITOR
	C13	QEZ0108-187Z	E CAPACITOR
	C14	QED61HM-105	E CAPACITOR
⚠	C15	QCZ9016-222M	CAPACITOR, E
⚠	C16	QCZ9016-222M	CAPACITOR, E
	C17	QCY43AK-121	CAPACITOR
	C20	QEZ0104-476Z	E CAPACITOR
	C21	QETC1JM-106	E CAPACITOR
	C22	QETC1HM-106	E CAPACITOR
	C23	QEZ0125-228	E CAPACITOR
	C24	QETB1EM-228	E CAPACITOR
	C25	QEZ0104-476Z	E CAPACITOR
	C26	QETC1JM-106	E CAPACITOR
	C27	QEZ0106-338	E CAPACITOR
	C28	QETB1AM-228	E CAPACITOR
	C29	QFL41HJ-102	M CAPACITOR
	C30	QFL41HJ-102	M CAPACITOR
	L20	PU48530-330K	PEAKING COIL
	L21	PU59701-330	CHOKE COIL
	L22	PU48530-330K	PEAKING COIL
	L23	PU59701-330	CHOKE COIL
	L24	PU48530-8R2K	CHOKE COIL
	L25	PU48530-8R2K	CHOKE COIL
⚠	POC1	QMP3980-200	POWER CORD, E
⚠		QMP4019-200	POWER CORD, EG
⚠	RY1	PU59457	RELAY
⚠	T1	PU60720	SW.TRANS
⚠	BKT1	PQ31670-4	TRANS BRACKET
⚠	HD1	QHS3771-108	STRAIN RELIEF
⚠	HD2	PU57505	FUSE CLIP, X4 FOR F1, F2
	HS1	PQ43642	HEAT SINK, FOR IC1
	HS2	PQ43666	HEAT SINK, FOR D21,D23
⚠	LF1	PU60347	LINE FILTER
	SCW1	SDST3006Z	TAPPING SCREW,X2
	SCW2	DPSP3008Z	SCREW, FOR IC1
	SCW3	DPSP3008Z	SCREW, X2, FOR D21,D23
	SLD1	PQ32464	SHIELD CASE (1)
	SLD2	PQ32483	SHIELD CASE(2)
	SLD3	PU60766	INSULATOR
⚠	A01	QMC9021-001	AC OUTLET
	CN1	PU58844-7	CAP HOUSING
	CN2	PU58844-6	CAP HOUSING
⚠	F1	QMF51E2-1R0	FUSE
⚠	F2	QMF51E2-2R0	FUSE

MAIN BOARD ASSEMBLY <03>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PB10125C1-01	MAIN BOARD ASSY, EG
		PB10125V1-01	MAIN BOARD ASSY, E
⚠	RF1	PU59980M-4	RF CONVERTER/MIX BOOSTER

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	CL1	PU56729-2	WIRE CLAMP, X3
	ETH1	PQ43012	EARTH PLATE, RF CONV.
	SCW1	SDST2605Z	TAPPING SCREW, RF CONV.
	SCW2	SDSF2608Z	TAPPING SCREW, X2 TERM. BOARD
	SPC1	PU60010	SPACER, X2
⚠	TML1	PQ20438-23	TERMINAL BOARD, EG
⚠	TML1	PQ20438-25-15	TERMINAL BOARD, E
	WR1	PW30401-AB20T	COAXIAL CORD
	WR2	OR PW30401-AB20S	COAXIAL CORD
	J125	P21D-04A2A2K0N	WIRE

-LUMINANCE SECTION-

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	IC101	PQ20166G	Y.MODULE ASS'Y, EG
	IC101	PB20166C	Y.MODULE ASSY, E
	IC102	MSM6967RS	IC
	IC103	BX6385	IC
	Q101	2SC1740S(QRS)	TRANSISTOR
	Q102	2SC1740S(QRS)	TRANSISTOR
	Q103	2SA933S(RS)	TRANSISTOR
	Q104	2SC1740S(QRS)	TRANSISTOR
	Q105	DTC144WS	TRANSISTOR
	Q106	DTC124ES	TRANSISTOR
	Q107	2SB810H,J	TRANSISTOR
	Q108	2SA933S(RS)	TRANSISTOR
	Q201	DTC124ES	TRANSISTOR
	Q204	2SC1740S(QRS)	TRANSISTOR
	Q207	DTA124ES	TRANSISTOR
	Q208	DTC124ES	TRANSISTOR
	D101	1SS133	DIODE
		OR MA165	DIODE
	D102	1SS133	DIODE
		OR MA165	DIODE
	D103	1SS133	DIODE
		OR MA165	DIODE
	D104	RD9.1ES-T1B2	ZENER DIODE
		OR UZ9.1BSB	ZENER DIODE
	D105	1SS133	DIODE
		OR MA165	DIODE
	D106	1SS292	DIODE
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	D125	1SS133	DIODE
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		OR MA165	DIODE
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		OR MA165	DIODE
	D206	1SS133	DIODE
		OR MA165	DIODE

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	D207	1SS133	DIODE
	R101	QRD161J-563	RESISTOR
	R102	QRD161J-102	RESISTOR
	R103	QRD161J-103	RESISTOR
	R104	QRD161J-473	RESISTOR
	R106	QRD161J-681	RESISTOR
	R107	QRD161J-331	RESISTOR
	R108	QRD161J-103	RESISTOR
	R109	QRD161J-273	RESISTOR
	R110	QRD161J-222	RESISTOR
	R111	QRD161J-102	RESISTOR
	R112	QVZ3518-222	V RESISTOR
		OR QVZ3523-222	V RESISTOR
	R113	QRD161J-222	RESISTOR
	R114	QRD161J-102	RESISTOR
⚠	R115	QRD161J-181	RESISTOR
	R116	QRD161J-750	RESISTOR
	R117	QRD161J-562	RESISTOR
	R120	QRD161J-333	RESISTOR
	R121	QRD161J-681	RESISTOR
	R122	QRD161J-183	RESISTOR
	R123	QRD161J-152	RESISTOR
	R124	QRD161J-101	RESISTOR
	R127	QVZ3518-332AZ	V RESISTOR
		OR QVZ3523-332AZ	V RESISTOR
	R128	QRD161J-102	RESISTOR
	R129	QRD161J-681	RESISTOR
	R130	QRD161J-103	RESISTOR
	R131	QRD161J-221	RESISTOR
	R132	QRD161J-222	RESISTOR
	R133	QRD161J-221	RESISTOR
	R134	QRD161J-750	RESISTOR
	R135	QRD161J-101	RESISTOR
	R141	QRD161J-223	RESISTOR
	R142	QRD161J-393	RESISTOR
	R143	QRD161J-102	RESISTOR
	R145	QRD161J-472	RESISTOR
	R146	QRD161J-152	RESISTOR
	R201	QRD161J-122	RESISTOR
	R202	QRD161J-471	RESISTOR
	R203	QRD161J-301	RESISTOR
	R204	QVZ3518-102AZ	V RESISTOR
		OR QVZ3523-102AZ	V RESISTOR
	R206	QRD161J-222	RESISTOR
	R207	QRD161J-222	RESISTOR
	R210	QRD161J-223	RESISTOR
	C101	QCVB1CN-103	CAPACITOR
	C104	QCVB1CN-103	CAPACITOR
	C105	QCBB1HJ-121	CAPACITOR
	C106	QCBB1HJ-121	CAPACITOR
	C107	QCSB1HJ-220	CAPACITOR
	C108	QCSB1HJ-220	CAPACITOR
	C109	QCBB1HJ-151	CAPACITOR
	C110	QCBB1HJ-102	CAPACITOR
	C111	QETC1EM-335	E CAPACITOR
	C112	QCSB1HJ-120	CAPACITOR
	C113	QETC1AM-226	E CAPACITOR
	C114	QEN61HM-225	NP E CAPACITOR
	C115	QEN61AM-226	NP E CAPACITOR
	C116	QETC1EM-475	E CAPACITOR
	C117	QETC1HM-104	E CAPACITOR
	C118	QCVB1CN-103	CAPACITOR
	C119	QCVB1CN-103	CAPACITOR
	C120	QETC1EM-475	E CAPACITOR
	C121	QCSB1HJ-120	CAPACITOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C122	QCVB1CN-103	CAPACITOR
	C123	QETC0JM-476	E CAPACITOR
	C124	QETC1AM-476	E CAPACITOR
	C125	QCVB1CN-103	CAPACITOR
	C126	QCVB1CN-103	CAPACITOR
	C127	QCVB1CN-103	CAPACITOR
	C128	QCSB1HJ-470	CAPACITOR
	C129	QETC0JM-476	E CAPACITOR
	C130	QCVB1CN-103	CAPACITOR
	C131	QETC0JM-337	E CAPACITOR
	C132	QCVB1CN-103	CAPACITOR
	C133	QCVB1CN-103	CAPACITOR
	C134	QCBB1HJ-102	CAPACITOR
	C135	QCBB1HJ-102	CAPACITOR
	C136	QEN61HM-224	NP E CAPACITOR
	C137	QETC1HM-335	E CAPACITOR
	C138	QEN61EM-335	NP E CAPACITOR
	C139	QETC0JM-477	E CAPACITOR
	C140	QETC0JM-476	E CAPACITOR
	C141	QETC1CM-476	E CAPACITOR
	C142	QETC1CM-106	E CAPACITOR
	C253	QCBB1HJ-102	CAPACITOR
	L102	PU59152-221J	PEAKING COIL
	L103	PU59152-560J	PEAKING COIL
	L104	PU59152-330J	PEAKING COIL
	L105	PU59152-121J	PEAKING COIL
	L106	PU48530-101K	PEAKING COIL
	L107	PU59152-101J	PEAKING COIL
	L108	PU48530-101K	PEAKING COIL
	L109	PU48530-101K	PEAKING COIL
	L110	PU59152-680J	PEAKING COIL
	L112	PU48530-101K	PEAKING COIL
	L113	PU48530-101K	PEAKING COIL
	L114	PU48530-101K	PEAKING COIL
	L115	PU59152-180J	PEAKING COIL
	L252	PU59152-100J	PEAKING COIL
	EQ101	PU60162	EQUALIZER
	EQ102	PU54838	EQUALIZER
		OR PU60714	EQUALIZER
	LPF101	PU60161	LOW PASS FILTER
		OR PU60716	LOW PASS FILTER
	LPF102	PU58021-2	LOW PASS FILTER
		OR PU58021-3	LOW PASS FILTER
	SLD1	PQ42994	SHIELD PLATE
	SLD2	PQ42995	SHIELD CASE
	SLD3	PQ42996	SHIELD COVER
	TP106	PU57545	TEST PIN, X3 (106,121,GND)

-COLOR SECTION-

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
⚠	IC301	PB20227A	COLOR MODULE ASSY
	IC351	BA7106LS	IC
	Q301	2SC1740S(RS)	TRANSISTOR
	Q302	2SC1740S(RS)	TRANSISTOR
	Q303	2SC1740S(RS)	TRANSISTOR
	Q305	DTC124ES	TRANSISTOR
	Q306	2SA933S(RS)	TRANSISTOR
	Q307	2SC1740S(RS)	TRANSISTOR
	Q308	2SC1740S(RS)	TRANSISTOR
	Q351	DTC124ES	TRANSISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	D302	1SS133	DIODE
		OR MA165	DIODE
	D303	1SS133	DIODE
		OR MA165	DIODE
	D351	1SS133	DIODE
		OR MA165	DIODE
	D352	1SS133	DIODE
		OR MA165	DIODE
	D353	1SS133	DIODE
		OR MA165	DIODE
	R301	QRD161J-102	RESISTOR
	R302	QRD161J-102	RESISTOR
	R303	QRD161J-473	RESISTOR
	R304	QRD161J-272	RESISTOR
	R305	QRD161J-222	RESISTOR
	R306	QRD161J-102	RESISTOR
	R307	QRD161J-102	RESISTOR
	R312	QRD161J-391	RESISTOR
	R313	QRD161J-102	RESISTOR
	R314	QRD161J-223	RESISTOR
	R315	QRD161J-102	RESISTOR
	R316	QRD161J-183	RESISTOR
	R317	QRD161J-102	RESISTOR
	R318	QRD161J-102	RESISTOR
	R319	QRD161J-331	RESISTOR
	R320	QRD161J-222	RESISTOR
	R321	QVZ3518-681AZ	V RESISTOR
		OR QVZ3523-681AZ	V RESISTOR
	R322	QRD161J-153	RESISTOR
	R323	QRD161J-103	RESISTOR
	R324	QRD161J-222	RESISTOR
	R325	QRD161J-391	RESISTOR
	R326	QRD161J-471	RESISTOR
	R327	QRD161J-821	RESISTOR
	R331	QRD161J-333	RESISTOR
	R332	QRD161J-333	RESISTOR
	R333	QRD161J-152	RESISTOR
	R334	QRD161J-102	RESISTOR
	R335	QRD161J-393	RESISTOR
	R336	QRD161J-332	RESISTOR
	R351	QRD161J-914	RESISTOR
	R352	QRD161J-104	RESISTOR
	R353	QRD161J-103	RESISTOR
	R354	QRD161J-273	RESISTOR
	R355	QRD161J-223	RESISTOR
	R356	QRD161J-333	RESISTOR
	C301	QCVB1CN-103	CAPACITOR
	C302	QCBB1HJ-820	CAPACITOR
	C303	QCVB1CN-103	CAPACITOR
	C305	QCC31CJ-473	CAPACITOR
	C306	QCSB1HJ-470	CAPACITOR
	C311	QFN31HJ-224	M CAPACITOR
	C312	QFN31HJ-563	M CAPACITOR
	C313	QETC0JM-337	E CAPACITOR
	C314	QETC1HM-474	E CAPACITOR
	C315	QETC1HM-104	E CAPACITOR
	C316	QCVB1CN-103	CAPACITOR
	C317	QETC1HM-474	E CAPACITOR
	C318	QETC1CM-106	E CAPACITOR
	C319	QETC0JM-107	E CAPACITOR
	C320	QCVB1CN-103	CAPACITOR
	C321	QCVB1CN-103	CAPACITOR
	C323	QCVB1CN-103	CAPACITOR
	C324	QETC1HM-475	E CAPACITOR
	C325	QCVB1CN-103	CAPACITOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C326	QFN31HJ-682	M CAPACITOR
	C332	QCC31CJ-223	CAPACITOR
	C351	QETC1CM-106	E CAPACITOR
	C352	QETC1HM-335	E CAPACITOR
	C353	QCBB1HJ-471	CAPACITOR
	C354	QCVB1CN-103	CAPACITOR
	C355	QCVB1CN-103	CAPACITOR
	C356	QCVB1CN-103	CAPACITOR
	C357	QCVB1CN-103	CAPACITOR
	C358	QCVB1CN-103	CAPACITOR
	C359	QETC0JM-476	E CAPACITOR
	C360	QCSB1HJ-200	CAPACITOR
	C361	QCSB1HK-4R7	CAPACITOR
	C362	QCXB1CN-472	CAPACITOR
	C363	QCSB1HJ-270	CAPACITOR
	C364	QFN31HJ-471	M CAPACITOR
	L301	PU54710-222	PEAKING COIL
	L302	PU48530-271J	PEAKING COIL
	L303	PU59153-822J	PEAKING COIL
	L304	PU48530-181J	INDUCTOR
	L305	PU59152-150J	PEAKING COIL
	L306	PU48530-821J	PEAKING COIL
	L351	PU48530-101K	PEAKING COIL
	L352	PU59152-330J	PEAKING COIL
	L353	PU60655	COIL
	EQ301	PU53501-14	EQUALIZER
	LPF301	PU58022	LOW PASS FILTER
	BPF301	PU57072	BAND PASS FILTER
	BPF302	PU60654	BAND PASS FILTER
	CF301	PU57073	CERAMIC FILTER
	DL301	PU60340	COMB FILTER
	OR	PU60490	COMB FILTER
	OR	PU60222	2H DELAY LINE
	OR	PU58971-3	2H DELAY LINE
⚠	X301	PU60653	CRYSTAL RESONATOR
	TP205	PU57545	TEST PIN, X3 (205,304,351)
		-SERVO SECTION-	
	IC441	HD49722NT	IC
	IC471	BU2767S	IC
	IC472	BU4069UB	IC
	Q401	DTC144ES	TRANSISTOR
	OR	2SC3399	TRANSISTOR
	OR	UN4213	TRANSISTOR
	Q405	DTA124ES	TRANSISTOR
	OR	UN4112	TRANSISTOR
	OR	2SA1346	TRANSISTOR
	Q406	DTA124ES	TRANSISTOR
	OR	2SA1346	TRANSISTOR
	OR	UN4112	TRANSISTOR
	Q407	DTC144ES	TRANSISTOR
	OR	2SC3399	TRANSISTOR
	OR	UN4213	TRANSISTOR
	D401	1SS133	DIODE
	OR	MA165	DIODE
	D402	1SS133	DIODE
	OR	MA165	DIODE

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	D407	1SS133	DIODE
	OR	MA165	DIODE
	D408	1SS133	DIODE
	OR	MA165	DIODE
	D411	1SS133	DIODE
	OR	MA165	DIODE
	D412	1SS133	DIODE
	OR	MA165	DIODE
	D413	1SS133	DIODE
	OR	MA165	DIODE
	D414	1SS133	DIODE
	OR	MA165	DIODE
	D418	1SS133	DIODE
	OR	MA165	DIODE
	D419	1SS133	DIODE
	OR	MA165	DIODE
	D422	1SS133	DIODE
	OR	MA165	DIODE
	D441	1SS133	DIODE
	OR	MA165	DIODE
	D442	1SS133	DIODE
	OR	MA165	DIODE
	D443	1SS133	DIODE
	OR	MA165	DIODE
	D473	1SS133	DIODE
	OR	MA165	DIODE
	R401	QRD161J-102	RESISTOR
	R405	QRD161J-273	RESISTOR
	R406	QRD161J-222	RESISTOR
	R407	QRD161J-332	RESISTOR
	R410	QRD161J-223	RESISTOR
	R413	QRD161J-394	RESISTOR
	R414	QVZ3518-474AZ	V RESISTOR, SP X2
	OR	QVZ3523-474AZ	V RESISTOR, SP X2
	R415	QRD161J-104	RESISTOR
	R416	QVZ3521-105	V RESISTOR
	R417	QRD161J-102	RESISTOR
	R418	QRD161J-683	RESISTOR
	R419	QRD161J-274	RESISTOR
	R420	QRD161J-333	RESISTOR
	R421	QRD161J-100	RESISTOR
	R422	QRD161J-103	RESISTOR
	R423	QRD161J-183	RESISTOR
	R425	QRD161J-103	RESISTOR
	R427	QRD161J-103	RESISTOR
	R432	QRD161J-682	RESISTOR
	R441	QRD161J-682	RESISTOR
	R442	QRD161J-102	RESISTOR
	R443	QRD161J-155	RESISTOR
	R444	QRD161J-105	RESISTOR
	R445	QRD161J-102	RESISTOR
	R446	QRD161J-332	RESISTOR
	R447	QRD161J-102	RESISTOR
	R448	QRD161J-475	RESISTOR
	R449	QRD161J-333	RESISTOR
	R450	QRD161J-392	RESISTOR
	R451	QRD161J-153	RESISTOR
	R452	QRD161J-182	RESISTOR
	R453	QRD161J-105	RESISTOR
	R454	QRD161J-273	RESISTOR
	R455	QRD161J-395	RESISTOR
	R456	QRD161J-105	RESISTOR
	R457	QRD161J-273	RESISTOR
	R458	QRD161J-274	RESISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R459	QRD161J-393	RESISTOR
	R460	QRD161J-475	RESISTOR
	R461	QRD161J-334	RESISTOR
	R462	QRD161J-222	RESISTOR
	R463	QRD161J-102	RESISTOR
	R464	QRD161J-104	RESISTOR
	R465	QVZ3518-684AZ	V RESISTOR, SP SW P
	OR	QVZ3518-684	V RESISTOR, SP SW P
	R466	QRD161J-154	RESISTOR
	R467	QRD161J-103	RESISTOR
	R468	QRD161J-102	RESISTOR
	R469	QRD161J-102	RESISTOR
	R470	QRD161J-154	RESISTOR
	R471	QRD161J-102	RESISTOR
	R472	QRD161J-104	RESISTOR
	R473	QRD161J-153	RESISTOR
	R474	QRD161J-822	RESISTOR
	R475	QRD161J-334	RESISTOR
	R476	QRD161J-684	RESISTOR
	R477	QRD161J-103	RESISTOR
	R478	QVZ3518-105AZ	V RESISTOR , SP SLOW
	OR	QVZ3518-105	V RESISTOR , SP SLOW
	R479	QRD161J-154	RESISTOR
	R480	QRD161J-274	RESISTOR
	R481	QRD161J-104	RESISTOR
	R482	QRD161J-472	RESISTOR
	R483	QRD161J-103	RESISTOR
	C401	QCC11CK-473	CAPACITOR
	C402	QCBB1HJ-102	CAPACITOR
	C406	QCC11CK-102	CAPACITOR
	C407	QFL41HJ-102	M CAPACITOR
	C408	QFV71HJ-124	M CAPACITOR
	C409	QFV71HJ-224	M CAPACITOR
	C411	QFV71HJ-274	M CAPACITOR
	C441	QCC11CK-102	CAPACITOR
	C442	QETC1AM-226	E CAPACITOR
	C443	QETC1AM-226	E CAPACITOR
	C444	QCSB1HJ-150	CAPACITOR
	C445	QETC1HM-105	E CAPACITOR
	C446	QCC11CK-153	CAPACITOR
	C448	QCBB1HJ-561	CAPACITOR
	C449	QCC11CK-102	CAPACITOR
	C450	QEK61HM-105	E CAPACITOR
	C451	QEK61AM-226	E CAPACITOR
	C452	QCBB1HJ-101	CAPACITOR
	C453	QFV71HJ-564	M CAPACITOR
	C454	QFV71HJ-153	M CAPACITOR
	C455	QETC1EM-475	E CAPACITOR
	C456	QETB1EM-475	E CAPACITOR
	C457	QETC1CM-106	E CAPACITOR
	C458	QETC1CM-106	E CAPACITOR
	C459	QCC11CK-333	CAPACITOR
	C460	QFV71HJ-334	M CAPACITOR
	C461	QCBB1HJ-471	CAPACITOR
	C462	QFL41HJ-682	M CAPACITOR
	C463	QCBB1HJ-102	CAPACITOR
	C464	QFV71HJ-474	M CAPACITOR
	C471	QCC11CK-102	CAPACITOR
	C472	QFV71HJ-393	M CAPACITOR
	C473	QFV71HJ-393	M CAPACITOR
	C474	QFV71HJ-104	M CAPACITOR
	C475	QFV71HJ-124	M CAPACITOR
	C476	QFV71HJ-393	M CAPACITOR
	C477	QCBB1HJ-121	CAPACITOR
	C478	QEK61AM-226	E CAPACITOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C479	QCBB1HJ-101	CAPACITOR
	C480	QCBB1HJ-101	CAPACITOR
	C481	QCBB1HJ-561	CAPACITOR
	TP401	PU57545	TEST PIN, X4 (401,411,471,GND)
	CN401	PU58844-4	CAP HOUSING

-MECHACON SECTION-

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	IC601	M50965-367SP	IC
	OR	M50965E-342SP	IC
	IC602	TA8405S	IC
	IC603	M54647L	IC
	IC604	BA6222	IC
	Q601	2SC1740S(RS)	TRANSISTOR
	D601	HZS4.3EB2	ZENER DIODE
	D602	MA165	DIODE
	OR	1SS133	DIODE
	D603	MA165	DIODE
	OR	1SS133	DIODE
	D604	MA165	DIODE
	OR	1SS133	DIODE
	D606	MA165	DIODE
	OR	1SS133	DIODE
	D608	HZS7.5EB2	ZENER DIODE
	D610	MA165	DIODE
	OR	1SS133	DIODE
	D611	MA165	DIODE
	OR	1SS133	DIODE
	D612	MA165	DIODE
	OR	1SS133	DIODE
	R602	QRD161J-332	RESISTOR
	R603	QRD161J-122	RESISTOR
	R604	QRD161J-823	RESISTOR
	R605	QRD161J-102	RESISTOR
	R606	QRD161J-102	RESISTOR
	R607	QRD161J-103	RESISTOR
	R608	QRD161J-103	RESISTOR
	R611	QRD161J-102	RESISTOR
	R612	QRD161J-472	RESISTOR
	R613	QRD161J-105	RESISTOR
	R614	QRD161J-472	RESISTOR
	R615	QRD161J-472	RESISTOR
	R616	QRD161J-472	RESISTOR
	R617	QRD161J-472	RESISTOR
	R618	QRD161J-472	RESISTOR
	R619	QRD161J-472	RESISTOR
	R620	QRD161J-472	RESISTOR
	R621	QRD161J-472	RESISTOR
	R622	QRD161J-333	RESISTOR
	R623	QRD161J-124	RESISTOR
	R624	QRD161J-124	RESISTOR
	R625	QRD161J-472	RESISTOR
	R626	QRD161J-472	RESISTOR
	R627	QRD161J-472	RESISTOR
	R628	QRD161J-472	RESISTOR
	R629	QRD161J-472	RESISTOR
	R630	QRD161J-821	RESISTOR
	R631	QRD161J-331	RESISTOR
	R632	QRD161J-822	RESISTOR
	R633	QRD161J-103	RESISTOR
	R634	QRD161J-103	RESISTOR
	R635	QRD161J-333	RESISTOR
	R637	QRD161J-152	RESISTOR
	R638	QRD161J-471	RESISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R642	QRD181J-103	RESISTOR
	R643	QRD181J-103	RESISTOR
	R644	QRD181J-103	RESISTOR
	RA601	QRB047J-103	RESISTOR ARRAY
	OR	QRB049J-103	RESISTOR ARRAY
	RA602	QRB047J-472	NETWORK RESISTOR
	OR	QRB049J-472	RESISTOR ARRAY
	C601	QCFB1EZ-223	CAPACITOR
	C602	QETC1EM-335	E CAPACITOR
	C603	QCFB1EZ-223	CAPACITOR
	C604	QETB1HM-105	E CAPACITOR
	C605	QETC1EM-106	E CAPACITOR
	C606	QETC1EM-106	E CAPACITOR
	C607	QETC1EM-475	E CAPACITOR
	C608	QCF11HP-223	CAPACITOR
	L601	PU53223-R22G	PEAKING COIL
	CF601	PU60030	RESONATOR
	OR	PU60125	RESONATOR
	SCW1	SBSE3006Z	TAPPING SCREW, X2
	J611	P211-06A2A2K0K0	WIRE
	J612	P210-05A2A2K0K0	WIRE
	CN601	PU59934-15	WIRE HOLDER
	CN603	PU59555-12	CAP HOUSING
	CN604	PU59555-10	CAP HOUSING
	CN606	PU58844-4	CAP HOUSING
	CN607	PU59555-9	CAP HOUSING
⚠	CP602	ICP-F20	CIRCUIT PROTECTOR

-REGULATOR SECTION-

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	IC801	STK5490	IC
	IC802	MC7805ACT	IC
	Q801	DTB114ES	TRANSISTOR
	D802	MA165	DIODE
	OR	1SS133	DIODE
	D803	RD6.2ES-T1B2	ZENER DIODE
	D804	MA165	DIODE
	OR	1SS133	DIODE
	R801	QRD161J-272	RESISTOR
	R802	QRD161J-272	RESISTOR
	R803	QRD161J-223	RESISTOR
	C801	QETC1CM-107	E CAPACITOR
	C802	QETC1CM-107	E CAPACITOR
	C803	QETB1CM-107	E CAPACITOR
	C804	QETC0JM-107	E CAPACITOR
	C805	QETC1EM-106	E CAPACITOR
	C807	QETC0JM-107	E CAPACITOR
⚠	HS1	PQ32206	HEAT SINK, FOR IC801
⚠	HS2	PU60786	HEAT SINK, FOR IC802
	SCW1	SDSB3014Z	TH.TAP SCREW, X2
	SCW2	SDSB3010Z	SCREW, X2
	SCW3	SDSB3008Z	TAPPING SCREW, FOR IC802
	CP802	ICP-F25	CIRCUIT PROTECTOR
	CP803	ICP-F38	CIRCUIT PROTECTOR
	CP804	ICP-F25	CIRCUIT PROTECTOR

-MAIN SUB SECTION-

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PB30079A-01	MAIN SUB BOARD ASSEMBLY
	Q271	2SC1740S(QRS)	TRANSISTOR
	Q272	DTC144ES	TRANSISTOR
	Q273	DTC144ES	TRANSISTOR
	D271	1SS133	DIODE
	OR	MA165	DIODE
	D272	1SS133	DIODE
	OR	MA165	DIODE
	R271	QRD161J-394	RESISTOR
	R272	QRD161J-104	RESISTOR
	R273	QRD161J-103	RESISTOR
	R274	QRD161J-562	RESISTOR
	R275	QRD161J-223	RESISTOR
	R276	QRD161J-182	RESISTOR
	R277	QRD161J-682	RESISTOR
	C271	QCVB1CN-103	CAPACITOR
	C272	QEN60JM-336	NP E CAPACITOR
	SPC1	PQM30029-107	SPACER

-R.PAUSE BOARD SECTION-

REF NO.	PART NO.	PART NAME, DESCRIPTION
JC1	PU60659	MINI JACK

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TERMINAL BOARD ASSEMBLY <06>

REF NO.	PART NO.	PART NAME, DESCRIPTION
PWBA	PB30080A	TERMINAL BOARD ASSEMBLY
IC1	LA7222	IC
IC2	M5218P	IC
R1	QRD161J-471	RESISTOR
R2	QRD161J-471	RESISTOR
R3	QRD161J-103	RESISTOR
R4	QRD161J-103	RESISTOR
R5	QRD161J-273	RESISTOR
R6	QRD161J-273	RESISTOR
R7	QRD161J-563	RESISTOR
R8	QRD161J-563	RESISTOR
R9	QRD161J-563	RESISTOR
R10	QRD161J-563	RESISTOR
R11	QRD161J-471	RESISTOR
R12	QRD161J-471	RESISTOR
R13	QRD161J-223	RESISTOR
C1	QEK61HM-475	E CAPACITOR
C2	QEK61HM-475	E CAPACITOR
C3	QEK61CM-106	E CAPACITOR
C4	QEK61CM-106	E CAPACITOR
C6	QEP61EM-475	NP E CAPACITOR
C7	QEP61EM-475	NP E CAPACITOR
TML1	PU60677	CONN.BOARD ASSY

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IF BOARD ASSEMBLY <07>

REF NO.	PART NO.	PART NAME, DESCRIPTION
PWBA	PB10047C	IF BOARD ASSEMBLY

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	IC1	M51365SP	IC
	Q 1	2SC3354	TRANSISTOR
	Q 2	2SC3354	TRANSISTOR
	Q 3	2SC1317(RS)	TRANSISTOR
	Q 4	2SC1740(RS)	TRANSISTOR
		OR 2SC3311A(RS)	TRANSISTOR
		OR 2SC536SPA(FG)	TRANSISTOR
	Q 5	2SC1740(RS)	TRANSISTOR
		OR 2SC3311A(RS)	TRANSISTOR
		OR 2SC536SPA(FG)	TRANSISTOR
	Q 6	2SA933S(RS)	TRANSISTOR
		OR 2SA1309AR,S	TRANSISTOR
	Q 7	2SC1740(RS)	TRANSISTOR
		OR 2SC3311A(RS)	TRANSISTOR
		OR 2SC536SPA(FG)	TRANSISTOR
	Q10	2SC3354	TRANSISTOR
	Q11	2SC1740(RS)	TRANSISTOR
		OR 2SC3311A(RS)	TRANSISTOR
		OR 2SC536SPA(FG)	TRANSISTOR
	Q12	DTC144ES	TRANSISTOR
		OR UN4213	TRANSISTOR
		OR 2SC3399	TRANSISTOR
	Q13	DTC144ES	TRANSISTOR
		OR UN4213	TRANSISTOR
		OR 2SC3399	TRANSISTOR
	D1	MTZ10B	ZENER DIODE
	D6	1SS133	DIODE
	D7	1SS133	DIODE
	D8	1SS133	DIODE
	R 1	NRD718J-750NBU	RESISTOR
	R 4	NRD718J-332NBU	RESISTOR
	R 6	NRD718J-182NBU	RESISTOR
	R7	NRD718J-331NBU	RESISTOR
	R 8	NRD718J-681NBU	RESISTOR
	R10	NRD718J-271NBU	RESISTOR
	R11	NRD718J-180NBU	RESISTOR
	R15	NRD718J-271NBU	RESISTOR
	R17	NRD718J-562NBU	RESISTOR
	R18	NRD718J-332NBU	RESISTOR
	R19	NRD718J-272NBU	RESISTOR
	R20	NRD718J-222NBU	RESISTOR
	R21	QVZ3518-472	V RESISTOR
		OR QVZ3523-472	V RESISTOR
	R22	NRD718J-824NBU	RESISTOR
	R24	NRD718J-821NBU	RESISTOR
	R31	NRD718J-222NBU	RESISTOR
	R32	NRD718J-102NBU	RESISTOR
	R33	NRD718J-223NBU	RESISTOR
	R34	NRD718J-470NBU	RESISTOR
	R35	NRD718J-561NBU	RESISTOR
	R36	NRD718J-561NBU	RESISTOR
	R37	NRD718J-271NBU	RESISTOR
	R38	NRD718J-182NBU	RESISTOR
	R39	NRD718J-272NBU	RESISTOR
	R40	QVZ3518-103	V RESISTOR
		OR QVZ3523-103	V RESISTOR
	R41	NRD718J-222NBU	RESISTOR
	R45	NRD718J-471NBU	RESISTOR
	R46	NRD718J-104NBU	RESISTOR
	R47	NRD718J-153NBU	RESISTOR
	R48	NRD718J-392NBU	RESISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R49	NRD718J-103NBU	RESISTOR
	R50	NRD718J-471NBU	RESISTOR
	R51	NRD718J-223NBU	RESISTOR
	R52	NRD718J-223NBU	RESISTOR
	R53	NRD718J-103NBU	RESISTOR
	R54	NRD718J-682NBU	RESISTOR
	R57	NRD718J-153NBU	RESISTOR
	R62	NRD718J-392NBU	RESISTOR
	R63	NRD718J-470NBU	RESISTOR
	R64	NRD718J-182NBU	RESISTOR
	R65	NRD718J-271NBU	RESISTOR
	R71	NRD718J-681NBU	RESISTOR
	R72	NRD718J-120NBU	RESISTOR
	R73	NRD718J-331NBU	RESISTOR
	R82	NRD718J-680NBU	RESISTOR
	R83	NRD718J-222NBU	RESISTOR
	R84	NRD718J-123NBU	RESISTOR
	R85	NRD718J-123NBU	RESISTOR
	R86	NRD718J-331NBU	RESISTOR
	R100	QRD162J-0R0	RESISTOR
	R101	QRD161J-182	RESISTOR
	R102	QRD161J-222	RESISTOR
	C 5	NCB71HK-102NBR	CAPACITOR
	C 6	NCX71CM-222NBR	CAPACITOR
	C 7	NCB71HK-102NBR	CAPACITOR
	C 8	NCB71HK-102NBR	CAPACITOR
	C10	QETC1CM-336	E CAPACITOR
	C11	NCY71CM-103NBR	CAPACITOR
	C13	NCX71CM-222NBR	CAPACITOR
	C14	PU57601-474MEZ	E CAPACITOR
	C15	QETC1CM-336	E CAPACITOR
	C16	NCX71CM-222NBR	CAPACITOR
	C17	NCF71EZ-223NBR	CAPACITOR
	C19	NCY71CM-103NBR	CAPACITOR
	C20	NCY71CM-103NBR	CAPACITOR
	C21	NCB71HK-101NBR	CAPACITOR
	C24	QETC1HM-105	E CAPACITOR
	C25	NCX71CM-222NBR	CAPACITOR
	C26	QFN31HK-222	M CAPACITOR
	C27	QETC1HM-474	E CAPACITOR
	C29	NCS71HJ-470NBR	CAPACITOR
	C31	QETC1HM-335	E CAPACITOR
	C32	NCF71EZ-223NBR	CAPACITOR
	C33	QETC1HM-474	E CAPACITOR
	C41	NCB71HK-102NBR	CAPACITOR
	C43	NCX71CM-222NBR	CAPACITOR
	C44	NCB71HK-102NBR	CAPACITOR
	C45	NCB71HK-102NBR	CAPACITOR
	C46	NCB71HK-102NBR	CAPACITOR
	C50	QETC1CM-336	E CAPACITOR
	C56	QETC1CM-336	E CAPACITOR
	C57	QEN61CM-336	NP E CAPACITOR
	C58	NCS71HJ-100NBR	CAPACITOR
	C60	NCB71HK-102NBR	CAPACITOR
	L 2	PU60025-1R0	PEAKING COIL
	L 3	PU60025-1R2	PEAKING COIL
	L 4	PU59152-150J	PEAKING COIL
	L 5	PU59152-220J	PEAKING COIL
	L 6	PU59152-6R8K	PEAKING COIL
	L 7	PU59152-R22K	PEAKING COIL
	CF1	PU49295-2	N FILTER

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	CF3	PU32990-2	CERAMIC FILTER
	CF4	PU49295	CERAMIC FILTER
	SAW1	PU35557-7	SAW FILTER
	SAW2	PU60765	SAW FILTER
	T 2	PU60497	IF.TRANSFORMER, VCO
	T 4	PU59488	COIL
	T 5	PU60046	IF.TRANSFORMER, SYNC
	T 8	PU60259	COIL
	TML1	PU59935-16	TERMINAL (JP1)

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TUNER CONTROL BOARD ASSEMBLY <08>

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#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PB20102C	TUNER CONTROL BOARD ASSEMBLY
⚠	TNR1	PU36155-1-4	UHF/VHF TUNER
	IC 1	M50445-398SP	IC
	IC 2	MSM16811RS	IC
	OR	CAT93C46P	IC
	Q 1	2SC1740S(RS)	TRANSISTOR
	OR	2SC3311A(RS)	TRANSISTOR
	OR	2SC536SPA(FG)	TRANSISTOR
	Q 2	2SK381(C)	FE TRANSISTOR
	Q 3	UN4319VI	TRANSISTOR
	Q 4	UN4319VI	TRANSISTOR
	Q 5	UN4319VI	TRANSISTOR
	Q 6	UN4319VI	TRANSISTOR
	Q 7	DTA124ES	TRANSISTOR
	Q 8	2SB810H,J	TRANSISTOR
	Q10	2SD1863(QR)	TRANSISTOR
	OR	2SC3243D,E	TRANSISTOR
	Q11	2SC3354	TRANSISTOR
	D 1	1SS133	DIODE
	D 2	E-452-2	DIODE
	D 3	HZ30-2	ZENER DIODE
	D 4	RD5.6ES-T1B3	ZENER DIODE
	OR	MTZ5.6CT-77	ZENER DIODE
	R 3	QRD161J-472	RESISTOR
	R 4	QRD161J-472	RESISTOR
	R 5	QRD161J-104	RESISTOR
	R 6	QRD161J-472	RESISTOR
	R 7	QRD161J-103	RESISTOR
	R 8	QRD161J-472	RESISTOR
	R11	QRD161J-103	RESISTOR
	R12	QRD161J-121	RESISTOR
	R13	QRD161J-152	RESISTOR
	R14	QRD161J-562	RESISTOR
	R15	QRD161J-472	RESISTOR
	R16	QRD161J-472	RESISTOR
	R17	QRD161J-153	RESISTOR
	R18	QRD161J-101	RESISTOR
	R19	QRD161J-103	RESISTOR
	R20	QRD161J-104	RESISTOR
	R22	QRD161J-104	RESISTOR
	R26	QRD161J-104	RESISTOR
	R32	QRD161J-222	RESISTOR
	R33	QRD161J-222	RESISTOR
	R34	QRD161J-103	RESISTOR
	R35	QRD161J-102	RESISTOR
	R36	QRD161J-103	RESISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R40	QRD161J-102	RESISTOR
	R41	QRD161J-331	RESISTOR
	R45	QRD161J-103	RESISTOR
	R46	QRD161J-103	RESISTOR
	R47	QRD161J-103	RESISTOR
	R48	QRD161J-103	RESISTOR
	RA 1	QRB047J-104	NETWORK RESISTOR
	C 2	QCBB1HK-102	CAPACITOR
	C 3	QETC1CM-107	E CAPACITOR
	C 4	QETC1CM-106	E CAPACITOR
	C 5	QETC1CM-106	E CAPACITOR
	C 6	QEK61HM-225	E CAPACITOR
	C 7	QETC1CM-106	E CAPACITOR
	C 8	QCBB1HK-102	CAPACITOR
	C 9	QETC1CM-106	E CAPACITOR
	C13	QFN31HJ-153	M CAPACITOR
	C14	QFV81HJ-474	M CAPACITOR
	OR	QFZ9011-474	MM CAPACITOR
	C15	QETC1HM-106	E CAPACITOR
	C16	QCBB1HK-102	CAPACITOR
	C17	QCVB1CM-103	CAPACITOR
	C18	QCT25CH-220	CAPACITOR
	C19	QCT25CH-270	CAPACITOR
	C20	PU57601-335MCZ	E CAPACITOR
	C23	QETC1CM-106	E CAPACITOR
	C24	QETC1AM-107	E CAPACITOR
	C25	QETC1AM-336	E CAPACITOR
	C31	QCVB1CM-103	CAPACITOR
	L 1	PU59152-R22K	PEAKING COIL
	L 2	PU59152-100J	PEAKING COIL
	L 7	PU59152-1R0K	PEAKING COIL
	L 8	PU59152-1R0K	PEAKING COIL
	L 9	PU59152-2R7J	PEAKING COIL
⚠	X 1	PU58554-2	CRYSTAL RESONATOR, 4.0M
	HD1	PU36416-1-3	HOLDER
	WR1	PW30401-AE10S	COAXIAL CORD
	WR2	PW30401-AE10S	COAXIAL CORD
	CN 2	PU58844-9	CAP HOUSING
	CN 3	PU58844-2	CAP HOUSING
	CN 4	PU59555-5	CAP HOUSING
	CN 5	PU58844-6	CAP HOUSING
⚠	CP 1	ICP-F10	CIRCUIT PROTECTOR

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AUDIO BOARD ASSEMBLY <09>

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#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PB20246A-01	AUDIO BOARD ASSEMBLY
	IC1	AN3380NK	IC
	IC2	TA7361AP	IC
	IC3	PB20167A-01	FMA MODULE.
	IC101	UPC78N05	IC
	Q1	2SC1740S(RS)	TRANSISTOR
	OR	2SC3199(GB)-TJK	TRANSISTOR
	Q2	2SC3311(RS)	TRANSISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	OR	2SC3199(GB)-TJK	TRANSISTOR
	Q3	DTC114ES	TRANSISTOR
	Q4	2SC1740S(RS)	TRANSISTOR
	OR	2SC3199(GB)-TJK	TRANSISTOR
	Q5	DTC114ES	TRANSISTOR
	Q6	DTC114ES	TRANSISTOR
	Q7	DTC114ES	TRANSISTOR
	Q8	DTA114ES	TRANSISTOR
	Q9	DTA114ES	TRANSISTOR
	Q11	2SC1740S(RS)	TRANSISTOR
	OR	2SC3199(GB)-TJK	TRANSISTOR
	Q12	DTC143TS	TRANSISTOR
	Q13	DTC143TS	TRANSISTOR
	Q16	2SC3311(RS)	TRANSISTOR
	OR	2SC3199(GB)-TJK	TRANSISTOR
	Q17	DTA114ES	TRANSISTOR
	Q101	2SD1764	TRANSISTOR
	Q102	2SA854S(QR)	TRANSISTOR
	Q103	2SB1068(KU)	TRANSISTOR
	D1	1SS133	DIODE
	OR	MA165	DIODE
	D3	1SS133	DIODE
	OR	MA165	DIODE
	D4	1SS133	DIODE
	OR	MA165	DIODE
	D7	1SS133	DIODE
	OR	MA165	DIODE
	D8	1SS133	DIODE
	OR	MA165	DIODE
	D12	1SS133	DIODE
	OR	MA165	DIODE
	D23	1SS133	DIODE
	OR	MA165	DIODE
	D101	HZ12A2	ZENER DIODE
	D102	1SS133	DIODE
	OR	MA165	DIODE
	R3	QRD161J-102	RESISTOR
	R4	QRD161J-682	RESISTOR
	R5	QRD161J-151	RESISTOR
	R6	QRD161J-152	RESISTOR
	R7	QRD161J-222	RESISTOR
	R8	QRD161J-100	RESISTOR
	R9	QVZ3518-473	V RESISTOR
	R10	QRD161J-333	RESISTOR
	R11	QRD161J-473	RESISTOR
	R12	QRD161J-101	RESISTOR
	R13	QRD161J-473	RESISTOR
	R14	QRD161J-6R8	RESISTOR
	R15	QRD161J-103	RESISTOR
	R18	QRD161J-153	RESISTOR
	R20	QRD161J-103	RESISTOR
	R21	QRD161J-680	RESISTOR
	R22	QRD161J-750	RESISTOR
	R23	QRD161J-303	RESISTOR
	R25	QRD162J-103	RESISTOR
	R26	QRD161J-154	RESISTOR
	R27	QRD161J-561	RESISTOR
	R28	QVZ3518-102	V RESISTOR
	R29	QRD161J-102	RESISTOR
	R31	QRD161J-151	RESISTOR
	R32	QRD161J-102	RESISTOR
	R33	QRD161J-102	RESISTOR
	R34	QRD161J-151	RESISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R42	QRD161J-223	RESISTOR
	R43	QRD161J-101	RESISTOR
	R44	QRD161J-101	RESISTOR
	R45	QRD161J-392	RESISTOR
	R46	QRD161J-332	RESISTOR
	R47	QRD161J-153	RESISTOR
	R48	QRD161J-223	RESISTOR
	R49	QRD161J-274	RESISTOR
	R50	QRD161J-222	RESISTOR
	R51	QRD161J-222	RESISTOR
	R53	QRD161J-333	RESISTOR
	R58	QRD161J-333	RESISTOR
	R59	QRD161J-333	RESISTOR
	R60	QRD161J-333	RESISTOR
	R62	QRD161J-333	RESISTOR
	R63	QRD161J-102	RESISTOR
	R64	QRD161J-331	RESISTOR
	R65	QRD161J-393	RESISTOR
	R66	QRD161J-8R2	RESISTOR
	R67	QRD161J-333	RESISTOR
	R68	QRD161J-333	RESISTOR
	R69	QRD161J-390	RESISTOR
	R70	QRD161J-273	RESISTOR
	R72	QRD161J-392	RESISTOR
	R73	QRD162J-392	RESISTOR
	R74	QRD162J-392	RESISTOR
	R78	QRD181J-0R0	RESISTOR
	R79	QRD162J-122	RESISTOR
	R80	QRD162J-122	RESISTOR
	R81	QRD161J-103	RESISTOR
	R82	QRD161J-153	RESISTOR
	R85	QRD161J-222	RESISTOR
	R86	QRD161J-103	RESISTOR
	R90	QRD161J-103	RESISTOR
	R101	QRD161J-182	RESISTOR
	R103	QRD161J-103	RESISTOR
	R104	QRD161J-222	RESISTOR
	R105	QRD161J-103	RESISTOR
	R106	QRD161J-681	RESISTOR
	C1	QETC1CM-106	E CAPACITOR
	C2	QETB1AM-476	E CAPACITOR
	C3	QEP61CM-106	NP E CAPACITOR
	C4	QETB1CM-106	E CAPACITOR
	C6	QETB1AM-336	E CAPACITOR
	C7	QETC1AM-476	E CAPACITOR
	C8	QCBB1HK-102	CAPACITOR
	C9	QCBB1HK-101	CAPACITOR
	C10	QETC1AM-336	E CAPACITOR
	C11	QETC1AM-107	E CAPACITOR
	C13	QETB1CM-106	E CAPACITOR
	C14	QEP61CM-106	NP E CAPACITOR
	C15	QETC1AM-476	E CAPACITOR
	C16	QETC1CM-106	E CAPACITOR
	C17	QCBB1HJ-331	CAPACITOR
	C18	QFV71HJ-223	M CAPACITOR
	OR	QFN31HJ-223	M CAPACITOR
	C19	QCC11EJ-102	CAPACITOR
	C20	QCC11EJ-102	CAPACITOR
	C21	QETC1CM-106	E CAPACITOR
	C22	QETC1EM-475	E CAPACITOR
	C24	QCXB1CM-222	CAPACITOR
	C25	QETC1HM-225	E CAPACITOR
	C26	QETC1AM-336	E CAPACITOR
	C27	QETC0JM-476	E CAPACITOR
	C28	QFV81HJ-104	M CAPACITOR
	OR	QFN31HJ-104	M CAPACITOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C29	QFN31HJ-563	M CAPACITOR
	C30	QETC1CM-106	E CAPACITOR
	C32	QFN31HJ-103	M CAPACITOR
	C33	QFV71HJ-564	M CAPACITOR
	C34	QEB61CM-226	LL CAP
	C35	QEB51HM-105	E CAPACITOR
	C36	QETC1CM-106	E CAPACITOR
	C37	QETC1AM-336	E CAPACITOR
	C38	QETC1CM-476	E CAPACITOR
	C39	QETC1AM-336	E CAPACITOR
	C40	QETC1CM-106	E CAPACITOR
	C41	QETC1CM-476	E CAPACITOR
	C42	QETC1HM-225	E CAPACITOR
	C43	QETC1CM-106	E CAPACITOR
	C44	QETC1HM-225	E CAPACITOR
	C45	QEN61HM-225	NP E CAPACITOR
	C46	QEN61HM-225	NP E CAPACITOR
	C47	QETC1HM-225	E CAPACITOR
	C48	QETC1HM-104	E CAPACITOR
	C49	QCF31HP-223	CAPACITOR
	C50	QFV81HJ-104	M CAPACITOR
		OR QFN31HJ-104	M CAPACITOR
	C51	QFV71HJ-104	M CAPACITOR
		OR QFN31HJ-104	M CAPACITOR
	C52	QFV71HJ-104	M CAPACITOR
		OR QFN31HJ-104	M CAPACITOR
	C53	QCF31HP-223	CAPACITOR
	C54	QETC1AM-107	E CAPACITOR
	C55	QCVB1CN-103	CAPACITOR
	C56	QCBB1HJ-102	CAPACITOR
	C57	QCSB1HJ-330	CAPACITOR
	C58	QCBB1HJ-331	CAPACITOR
	C59	QCBB1HJ-102	CAPACITOR
	C60	QCVB1CN-103	CAPACITOR
	C63	QCC11EJ-182	CAPACITOR
	C67	QETC1CM-106	E CAPACITOR
	C72	QCBB1HK-561	CAPACITOR
	C73	QCBB1HK-561	CAPACITOR
	C74	QCC11EJ-102	CAPACITOR
	C75	QCC11EJ-102	CAPACITOR
	C76	QFV71HJ-333	M CAPACITOR
		OR QFN31HJ-333	M CAPACITOR
	C77	QETC1CM-106	E CAPACITOR
	C78	QFV71HJ-104	M CAPACITOR
		OR QFN31HJ-104	M CAPACITOR
	C79	QCC11EJ-273	CAPACITOR
	C83	QCBC1HJ-821	CAPACITOR
	C101	QETC1EM-476	E CAPACITOR
	C102	QCBB1HK-102	CAPACITOR
	C103	QEK61HM-105	E CAPACITOR
	C104	QETB1CM-106	E CAPACITOR
	L1	PU54223-101J	PEAKING COIL
	L3	PU58308-392J	COIL
	L4	PU54223-221J	PEAKING COIL
	L5	PU54223-101J	PEAKING COIL
	BPF1	PU60610	BPF(1.4MHZ)
	BPF2	PU60611	BPF(1.8MHZ)
⚠	T1	PU60303	OSC TRANSFORMER
⚠	T2	PU60304	OSC TRANSFORMER
	HN1	PU58018-1-2	PWB HINGE
⚠	HS1	PU60185	HEAT SINK, FOR Q101
	HS2	PU60261	HEAT SINK, FOR IC101
	SCW1	DPSP3008Z	SCREW, FOR Q101
	SLD1	PU59960	P/R AMP SHIELD1
	SLD2	PU59961	P/R AMP SHIELD2
	SLD3	PU59962	P/R AMP SHIELD3
	TP31	PU55774	TEST PIN, X6(31-34,53,GND)
	CN1	PU58844-3	CAP HOUSING
	CN2	PU59555-9	CAP HOUSING
	CN3	PU58844-2	CAP HOUSING
	CN4	PU58844-4	CAP HOUSING
	CN5	PU58844-4	CAP HOUSING
	CN6	PU58844-2	CAP HOUSING
	CN7	PU58844-4	CAP HOUSING
	CN8	PU58844-4	CAP HOUSING
	CN9	PU58844-5	CAP HOUSING
	CN10	PU59555-4	CAP HOUSING
	CN11	PU58844-4R	CAP HOUSING
	CN12	PU58844-2R	CAP HOUSING
	CN13	PU58844-5	CAP HOUSING

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AUDIO CONTROL HEAD BOARD <12>

PWBA	PB40029	AC HEAD BOARD
CN1	PU58844-103B	CAP HOUSING
CN2	PU58844-104	CAP HOUSING

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DEMODULATOR BOARD ASSEMBLY <14>

PWBA	PB20240A	DEMODULATOR BOARD ASSEMBLY
IC1	TDA3800GS	IC
Q1	DTC114ES	TRANSISTOR
	OR 2SC3402	TRANSISTOR
	OR UN4211	TRANSISTOR
Q2	2SD1292(QR)	TRANSISTOR
	OR 2SC3068	TRANSISTOR
Q3	DTC114ES	TRANSISTOR
	OR 2SC3402	TRANSISTOR
	OR UN4211	TRANSISTOR
Q4	DTC114ES	TRANSISTOR
	OR UN4211	TRANSISTOR
	OR 2SC3402	TRANSISTOR
Q5	DTC114ES	TRANSISTOR
	OR UN4211	TRANSISTOR
	OR 2SC3402	TRANSISTOR
Q6	DTC114ES	TRANSISTOR
	OR 2SC3402	TRANSISTOR
	OR UN4211	TRANSISTOR
Q7	DTC144ES	TRANSISTOR
	OR UN4213	TRANSISTOR
	OR 2SC3399	TRANSISTOR
Q8	DTC114ES	TRANSISTOR
	OR UN4211	TRANSISTOR
	OR 2SC3402	TRANSISTOR
Q9	2SD1450S,T	TRANSISTOR
	OR 2SD1292(QR)	TRANSISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	Q10	2SD1450S,T	TRANSISTOR
	OR	2SD1292(QR)	TRANSISTOR
	D1	1SS133	DIODE
	D2	1SS133	DIODE
	D3	1SS133	DIODE
	D4	1SS133	DIODE
	D6	1SS133	DIODE
	R1	QRD161J-103	RESISTOR
	R2	QVZ3518-103	V RESISTOR
	R3	QRD161J-153	RESISTOR
	R4	QRD161J-331	RESISTOR
	R5	QRD161J-821	RESISTOR
	R6	QRD161J-102	RESISTOR
	R7	QRD161J-104	RESISTOR
	R8	QRD161J-154	RESISTOR
	R9	QRD161J-271	RESISTOR
	R10	QRD161J-273	RESISTOR
	R11	QRD161J-103	RESISTOR
	R12	QRD161J-103	RESISTOR
	R13	QRD161J-103	RESISTOR
	R14	QRD161J-103	RESISTOR
	R15	QRD161J-103	RESISTOR
	R16	QRD161J-103	RESISTOR
	R17	QRD161J-103	RESISTOR
	R21	QVZ3518-332	V RESISTOR
	R22	QRD161J-222	RESISTOR
	R23	QRD161J-103	RESISTOR
	R24	QVZ3518-332	V RESISTOR
	R25	QRD161J-222	RESISTOR
	R26	QRD161J-103	RESISTOR
	C1	QETC1CM-106	E CAPACITOR
	C2	QFN31HK-392	M CAPACITOR
	C3	QFN31HK-392	M CAPACITOR
	C4	QFN31HK-392	M CAPACITOR
	C5	QETC1CM-106	E CAPACITOR
	C6	QETC1CM-106	E CAPACITOR
	C7	QETC1CM-476	E CAPACITOR
	C8	QCF31HP-223	CAPACITOR
	C9	QCC11EK-473	CAPACITOR
	C10	QFP31HJ-102	M CAPACITOR
	C11	QETC1CM-477	E CAPACITOR
	C12	QCC11EK-473	CAPACITOR
	C13	QETC1CM-106	E CAPACITOR
	C14	QETC1CM-106	E CAPACITOR
	C15	QETC1CM-336	E CAPACITOR
	C16	QETC1CM-107	E CAPACITOR
	C17	QETC1HM-105	E CAPACITOR
	C18	QETC1CM-476	E CAPACITOR
	C20	QETC1CM-106	E CAPACITOR
	BPF1	PU58226	BAND PASS FILTER
	CF1	PU52775	CERAMIC FILTER
	CF2	PU52775-2	CERAMIC FILTER
	T1	PU59489	COIL
	T2	PU59490	COIL
	CN1	PU58844-6	CAP HOUSING
	CN2	PU58844-4	CAP HOUSING
	CN3	PU59555-4	CAP HOUSING

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TIMER BOARD ASSEMBLY <20>

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#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PB10143A1-01	TIMER BOARD ASSY,EG
		PB10143D1-01	TIMER BOARD ASSY,E
	IC1	UPD75216ACW-163	IC
	IC2	S-8053HNB	IC
	IC301	SDA5642	IC, EG
⚠	Q1	2SD1863(QR)	TRANSISTOR
	Q2	2SC3311A(RS)	TRANSISTOR
	Q3	DTC124ES	TRANSISTOR
	Q4	2SC3311A(RS)	TRANSISTOR
	Q5	DTC124ES	TRANSISTOR
	Q6	DTC124ES	TRANSISTOR
	D1	RD9.1ES-T1B2	ZENER DIODE
	OR	HZS9.1EB2TJ	ZENER DIODE
	D2	DA210S	DIODE
	D3	MTZJ5.1B	ZENER DIODE
	OR	RD5.1ES-T1B2	ZENER DIODE
	D4	MTZ8.2B	ZENER DIODE
	OR	RD8.2ES-T1B2	ZENER DIODE
	D5	MTZ8.2B	ZENER DIODE
	OR	RD8.2ES-T1B2	ZENER DIODE
	D6	1SS133	DIODE
	OR	MA165	DIODE
	D7	1SS133	DIODE
	OR	MA165	DIODE
	D8	1SS133	DIODE
	OR	MA165	DIODE
	D9	1SS133	DIODE
	OR	MA165	DIODE
	D10	1SS133	DIODE
	OR	MA165	DIODE
	D25	1SS133	DIODE
	D26	1SS133	DIODE
	D29	1SS133	DIODE
	D30	1SS133	DIODE
	D35	1SS133	DIODE
	R1	QRD161J-121	RESISTOR
	R2	QRD161J-222	RESISTOR
	R3	QRD161J-103	RESISTOR
	R4	QRD161J-682	RESISTOR
	R5	QRD161J-104	RESISTOR
	R6	QRD161J-151	RESISTOR
	R7	QRD161J-102	RESISTOR
	R8	QRD161J-104	RESISTOR
	R9	QRD161J-472	RESISTOR
	R10	QRD161J-102	RESISTOR
	R11	QRD161J-102	RESISTOR
	R12	QRD161J-102	RESISTOR
	R13	QRD161J-102	RESISTOR
	R14	QRD161J-102	RESISTOR
	R15	QRD161J-102	RESISTOR
	R16	QRD161J-102	RESISTOR
	R17	QRD161J-102	RESISTOR
	R19	QRD161J-102	RESISTOR
	R20	QRD161J-102	RESISTOR
	R21	QRD161J-102	RESISTOR
	R22	QRD161J-472	RESISTOR
	R23	QRD161J-472	RESISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R24	QRD161J-472	RESISTOR
	R25	QRD161J-472	RESISTOR
	R26	QRD161J-102	RESISTOR
	R29	QRD161J-472	RESISTOR
	R30	QRD161J-472	RESISTOR
	R31	QRD161J-472	RESISTOR
	R32	QRD161J-472	RESISTOR
	R33	QRD161J-472	RESISTOR
	R34	QRD161J-472	RESISTOR
	R35	QRD161J-472	RESISTOR
	R36	QRD161J-472	RESISTOR
	R37	QRD161J-472	RESISTOR
	R38	QRD161J-472	RESISTOR
	R39	QRD161J-472	RESISTOR
	R40	QRD161J-472	RESISTOR
	R41	QRD161J-472	RESISTOR
	R42	QRD161J-472	RESISTOR
	R43	QRD161J-333	RESISTOR
	R44	QRD161J-472	RESISTOR
	R45	QRD161J-472	RESISTOR
	R46	QRD161J-102	RESISTOR
	R47	QRD161J-333	RESISTOR
	R49	QRD161J-272	RESISTOR
	R301	QRD161J-824	RESISTOR, EG
	R302	QRD161J-101	RESISTOR, EG
	R303	QRD161J-562	RESISTOR, EG
	R304	QRD161J-104	RESISTOR, EG
	R305	QRD161J-103	RESISTOR, EG
	R306	QRD161J-103	RESISTOR, EG
	R307	QRD161J-105	RESISTOR, EG
	R308	QRD161J-824	RESISTOR, EG
	R309	QRD161J-104	RESISTOR, EG
	R310	QRD161J-202	RESISTOR, EG
	RA1	QRB067J-224	RESISTOR ARRAY
		OR QRB069J-224	RESISTOR ARRAY
		OR QRB069J-224C	RESISTOR ARRAY
	RA2	QRB067J-104	NETWORK RESISTOR
		OR QRB069J-104C	RESISTOR ARRAY
		OR QRB069J-104	NETWORK RESISTOR
	RA3	QRB047J-333	RESISTOR ARRAY
		OR QRB049J-333	RARRAY
		OR QRB049J-333C	RESISTOR ARRAY
	RA4	QRB037J-104	NETWORK RESISTOR
		OR QRB039J-104C	RESISTOR ARRAY
		OR QRB039J-104	NETWORK RESISTOR
	C1	QETC1CM-336	E CAPACITOR
	C2	QETC1HM-335	E CAPACITOR
	C3	QCBB1HJ-102	CAPACITOR
	C4	PU60676-473	E CAPACITOR
		OR QEA40HZ-473	E CAPACITOR (DOUBLE)
	C5	QETC1AM-336	E CAPACITOR
	C6	QETC0JM-336	E CAPACITOR
	C7	QCVB1CN-103	CAPACITOR
	C8	QETC1CM-106	E CAPACITOR
	C9	QCVB1CN-103	CAPACITOR
	C10	PU57672-200	TRIMMER CAPACITOR
	C11	QCT30CH-120	CAPACITOR
	C301	QFN31HJ-103	M CAPACITOR, EG
	C302	QFN31HJ-333	M CAPACITOR, EG
	C303	QFN31HJ-103	M CAPACITOR, EG
	C304	QETC1HM-104	E CAPACITOR, EG
	C305	QCBB1HJ-151	CAPACITOR, EG
	L1	PU48530-101K	PEAKING COIL
⚠	X1	PU60226	CRYSTAL RESONATOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
⚠	CP1	ICP-F10	CIRCUIT PROTECTOR

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OPERATION BOARD ASSEMBLY <22>

REF NO.	PART NO.	PART NAME, DESCRIPTION
PWBA	PB20071H1	OP.BOARD ASSY
IC201	GP1U501	INFRARED RAYS UNIT
	OR SPS-413	INFRARED RAYS UNIT
D200	MTZ5.1B	ZENER DIODE
D201	SLR-55MC3F	LE DIODE
D202	SLR-55MC3F	LE DIODE
R200	QRD161J-821	RESISTOR
R208	QRD161J-102	RESISTOR
R211	QRD161J-102	RESISTOR
R212	QRD161J-122	RESISTOR
R213	QRD161J-222	RESISTOR
R214	QRD161J-332	RESISTOR
R216	QRD161J-122	RESISTOR
R217	QRD161J-222	RESISTOR
R219	QRD161J-223	RESISTOR
R220	QRD161J-563	RESISTOR
R221	QRD161J-471	RESISTOR
R227	QRD161J-103	RESISTOR
R231	QRD161J-103	RESISTOR
R404	PU60298	V RESISTOR
S15	PU57550	TACT SWITCH
S201	PU57550	TACT SWITCH
S203	PU57550	TACT SWITCH
S204	PU57550	TACT SWITCH
S205	PU57550	TACT SWITCH
S206	PU57550	TACT SWITCH
S207	PU57550	TACT SWITCH
S208	PU57550	TACT SWITCH
S212	PU57550	TACT SWITCH
S216	PU57550	TACT SWITCH
S217	PU57550	TACT SWITCH
J401	PU58356-2	JACK(HEADPHONE)
CN201	PU59513-4	CAP HOUSING
CN202	PU59555-105	CAP HOUSING
CN204	PU59513-2	CAP HOUSING
CN205	PU59555-102	CAP HOUSING

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SW/DISPLAY BOARD ASSEMBLY <28>

REF NO.	PART NO.	PART NAME, DESCRIPTION
PWBA	PB10143A2-01	SW/DISPLAY BOARD ASSY,FOR EG
	PB10143D2-01	SW/DISPLAY BOARD ASSY,FOR E
IC101	MSC7112-01SS	IC

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	IC102	M50255P	IC
	IC103	PU60764	LEVEL IND ASSY
	Q101	2SK658	FE TRANSISTOR
	D106	SLH-34VR3F	LE DIODE
	D107	SLH-34VR3F	LE DIODE
	D109	SLR-55VC3F	LE DIODE
	D110	SLR-55MC3F	LE DIODE
	D111	SLR-55DC3F	LE DIODE
	D112	SLR-55VC3F	LE DIODE
	D113	SLH-34VR3F	LE DIODE
	D114	SLH-34VR3F	LE DIODE
	D115	SLH-34VR3F	LE DIODE
	D116	SLH-34VR3F	LE DIODE
	D117	SLR-34MC3F	LE DIODE
	R104	QRD161J-273	RESISTOR
	R105	QRD161J-102	RESISTOR
	R106	QRD161J-102	RESISTOR
	R107	QRD161J-102	RESISTOR
	R108	QRD161J-102	RESISTOR
	R110	QRD161J-333	RESISTOR
	R111	QRD161J-271	RESISTOR
	R112	QRD161J-271	RESISTOR
	R113	QRD161J-472	RESISTOR
	R114	QRD161J-472	RESISTOR
	R115	QRD161J-823	RESISTOR
	R116	QRD161J-333	RESISTOR
	R117	QRD161J-333	RESISTOR
	R118	QRD161J-271	RESISTOR
	R119	QRD161J-271	RESISTOR
	R120	QRD161J-271	RESISTOR
	R121	PU59166	V RESISTOR
	R122	QRD161J-271	RESISTOR
	R123	QRD161J-271	RESISTOR
	R124	QRD161J-271	RESISTOR
	R125	QRD161J-271	RESISTOR
	R126	QRD161J-271	RESISTOR
	R127	QRD161J-271	RESISTOR
	R128	QRD161J-271	RESISTOR
	R129	QRD161J-333	RESISTOR
	R215	QRD161J-472	RESISTOR
	R225	QRD161J-332	RESISTOR
	R226	QRD161J-472	RESISTOR
	R228	QRD161J-103	RESISTOR
	R229	QRD161J-223	RESISTOR
	C101	QER61VM-106	E CAPACITOR
	C102	QER60JM-336	E CAPACITOR
	C103	QCVB1CN-103	CAPACITOR
	C104	QER61HM-104	E CAPACITOR
	C105	QCBB1HJ-101	CAPACITOR
	C106	QCSB1HJ-330	CAPACITOR
	C107	QCSB1HJ-330	CAPACITOR
	S1	PU60392-Z	TACT SWITCH
	S2	PU60392-Z	TACT SWITCH
	S3	PU60392-Z	TACT SWITCH
	S4	PU60392-Z	TACT SWITCH
	S5	PU60392-Z	TACT SWITCH
	S6	PU60392-Z	TACT SWITCH
	S7	PU60392-Z	TACT SWITCH
	S8	PU60392-Z	TACT SWITCH
	S9	PU60392-Z	TACT SWITCH
	S10	PU60392-Z	TACT SWITCH
	S12	PU60392-Z	TACT SWITCH
	S13	PU60392-Z	TACT SWITCH
	S14	PU60392-Z	TACT SWITCH
	S16	PU60392-Z	TACT SWITCH
	S17	PU60392-Z	TACT SWITCH
	S18	PU60392-Z	TACT SWITCH
	S19	PU60392-Z	TACT SWITCH
	S20	PU60392-Z	TACT SWITCH
	S21	PU60392-Z	TACT SWITCH
	S22	PU60392-Z	TACT SWITCH
	S23	PU60392-Z	TACT SWITCH
	S24	PU60392-Z	TACT SWITCH
	S25	PU60392-Z	TACT SWITCH
	S26	PU60392-Z	TACT SWITCH
	S27	PU60392-Z	TACT SWITCH
	S29	PU60392-Z	TACT SWITCH
	S210	PU60392-Z	TACT SWITCH
	S211	PU60392-Z	TACT SWITCH
	S212	PU60392-Z	TACT SWITCH
	S213	PU60392-Z	TACT SWITCH
	S214	PU60392-Z	TACT SWITCH
	S215	PU60392-Z	TACT SWITCH
	S402	PU58486-1-1	SLIDE SWITCH
	S404	PU58486-1-1	SLIDE SWITCH
	FDP1	PU60500-2	FLUORESCENT DISPLAY PANEL,EG
		PU60500	FLUORESCENT DISPLAY PANEL,E
	HD1	PQ31355-1-2	FDP HOLDER(R)
	HD2	PQ31356-1-2	FDP HOLDER(L)
	J5	PU58355-2	MIC JACK

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* UPPER DRUM BOARD <41> *
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	PWB1	PDM3207	UPPER DRUM BOARD

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****
* PRE/REC AMP BOARD ASSEMBLY <43> *
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	PWBA	PB30025F	PRE/REC BOARD ASSEMBLY
	IC1	HA118019NT	IC
	Q1	2SA1309R,S	TRANSISTOR
	Q2	2SA1309R,S	TRANSISTOR
	Q3	2SC1740S(RS)	TRANSISTOR
	Q4	2SC1740S(RS)	TRANSISTOR
	Q6	DTC124ES	TRANSISTOR
	Q7	DTC144WS	TRANSISTOR
	Q8	DTC124ES	TRANSISTOR
	D1	MA165	DIODE
		OR 1SS133	DIODE
	D2	MA165	DIODE
		OR 1SS133	DIODE
	D3	MA165	DIODE
		OR 1SS133	DIODE
	R1	QRD161J-102	RESISTOR
	R2	QRD161J-182	RESISTOR
	R3	QRD161J-222	RESISTOR

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R4	QRD161J-561	RESISTOR
	R5	QRD161J-681	RESISTOR
	R6	QRD161J-681	RESISTOR
	R7	QRD161J-332	RESISTOR
	R8	QRD161J-562	RESISTOR
	R9	QRD161J-102	RESISTOR
	R10	QRD161J-102	RESISTOR
	R11	QRD161J-681	RESISTOR
	R12	QRD161J-122	RESISTOR
	R13	QRD161J-681	RESISTOR
	R14	QRD161J-102	RESISTOR
	R15	QRD161J-182	RESISTOR
	R16	QRD161J-222	RESISTOR
	R17	QRD161J-223	RESISTOR
	R18	QRD161J-223	RESISTOR
	R19	QRD161J-223	RESISTOR
	R20	QRD161J-184	RESISTOR
	R21	QRD161J-223	RESISTOR
	R22	QRD161J-474	RESISTOR
	R23	QRD161J-223	RESISTOR
	R24	QRD161J-103	RESISTOR
	R25	QRD162J-103	RESISTOR
	R26	QRD161J-103	RESISTOR
	R27	QRD161J-103	RESISTOR
	R30	QRD161J-820	RESISTOR
	R31	QRD161J-820	RESISTOR
	R33	QRD162J-820	RESISTOR
	C1	QCBB1HJ-471	CAPACITOR
	C2	QCSB1HJ-180	CAPACITOR
	C3	QCVB1CN-103	CAPACITOR
	C4	QCSB1HJ-180	CAPACITOR
	C5	QCSB1HJ-100	CAPACITOR
	C6	QCVB1CN-103	CAPACITOR
	C7	QCSB1HJ-200	CAPACITOR
	C8	QCBB1HJ-681	CAPACITOR
	C9	QCSB1HJ-240	CAPACITOR
	C11	QCSB1HJ-220	CAPACITOR
	C13	QCVB1CN-103	CAPACITOR
	C14	QCC11EJ-473	CAPACITOR
	C16	QETC0JM-476	E CAPACITOR
	C17	QCVB1CN-103	CAPACITOR
	C18	QCBC1HJ-681	CAPACITOR
	C19	QETC1HM-104	E CAPACITOR
	C20	QCVB1CN-103	CAPACITOR
	C21	QCSB1HJ-680	CAPACITOR
	C22	QCVB1CN-103	CAPACITOR
	C24	QCVB1CN-103	CAPACITOR
	C25	QFZ0096-224	MM CAPACITOR
	C28	QFZ0096-224	MM CAPACITOR
	C29	QCVB1CN-103	CAPACITOR
	C32	QCVB1CN-103	CAPACITOR
	C34	QFZ0096-224	MM CAPACITOR
	C35	QCVB1CN-103	CAPACITOR
	C36	QETC0JM-476	E CAPACITOR
	C37	QCVB1CN-103	CAPACITOR
	C39	QCFB1EZ-223	CAPACITOR
	L1	PU59152-220J	PEAKING COIL
	L2	PU59152-560J	PEAKING COIL
	L3	PU59152-330J	PEAKING COIL
	L4	PU59152-151J	PEAKING COIL
	L6	PU59152-330J	PEAKING COIL
	L7	PU59152-560J	PEAKING COIL
	L8	PU48530-101K	PEAKING COIL
	L9	PU48530-101K	PEAKING COIL
	L10	PU59152-560J	PEAKING COIL

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	BKT1	PQ42955	PWB BRACKET
	ETH1	PQ40433-2	EARTH LUG
	SCW1	DPSP2606Z	SCREW, X2
	SLD1	PQ43281	SHIELD CASE
	SLD2	PQ43282	SHIELD PLATE
	SLD3	PQ43283	SHIELD COVER
	SPC1	WBS2600Z	T.LOCK WASHER, X2
	TP2	PU57545	TEST PIN, X3 (2, 6, GND)
	CN1	PU58844-8	CAP HOUSING
	CN2	PU59555-7	CAP HOUSING
	CN3	PU56258-10	CAP HOUSING
	CN4	PU58844-3	CAP HOUSING

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DECK TERMINAL BOARD ASSEMBLY <51><53>

	PWBA	PB20013A-03	DECK TERMINAL BOARD ASSY

-DECK TERMINAL BOARD SECTION <51>-

	PWBA1	PB20013A1	DECK TERMINAL BOARD ASSY
	R1	QRD181J-151	RESISTOR
	R3	QRD181J-331	RESISTOR
	PS1	PU60271	PHOTO INTERRUPTER

-REC SAFETY BOARD SECTION <53>-

	PWBA3	PB20013A3	REC SAFETY BOARD ASSY
	SW1	PU58644-1-3	REC SAFETY SWITCH

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RELAY BOARD ASSEMBLY <52>

	PWBA2	PB20013A2	RELAY BOARD ASSY
	LC1	PU59736-223	N FILTER
	LC2	PU59736-223	N FILTER
	WR1	PW30113-G0ABZ62	PARALLEL WIRE
	WR2	OR PW30118-G0ABZ62	PARALLEL WIRE

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END SENSOR BOARD ASSEMBLY <54>

	PWBA	PB20013A4	END SENSOR BOARD ASSY
	Q1	PN268R-NC	PHOTO TRANSISTOR
	HD1	PQ31047-1-4	E.S.HOLDER

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	CN1	PU59945-102	WIRE SOCKET

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CASSETTE HOUSING BOARD <56>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWB1	PB30043	CASSETTE HOUSING BOARD
	Q1	PN268R-NC	PHOTO TRANSISTOR
	R1	QRD162J-471	RESISTOR
	PHS1	PU58879	PHOTO INTERRUPTER
	CN1	PU58844-106	CAP HOUSING

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REC PAUSE BOARD ASSEMBLY <69>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PB10125A2	REC PAUSE BOARD ASSEMBLY
	JC1	PU60659	MINI JACK

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MIC/MIX BOARD ASSEMBLY <76>

#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION
	PWBA	PB30074A	MIC MIX BOARD ASSEMBLY
	IC1	M5201L	IC
	Q4	2SC3311A(RS)	TRANSISTOR
		OR 2SC3199(GB)-TJK	TRANSISTOR
	R7	QRD161J-222	RESISTOR
	R8	QRD161J-222	RESISTOR
	R9	QRD161J-222	RESISTOR
	R10	QRD161J-222	RESISTOR
	R11	QRD161J-223	RESISTOR
	R12	QRD161J-223	RESISTOR
	R13	QRD161J-104	RESISTOR
	R14	QRD161J-221	RESISTOR
	R15	QRD161J-562	RESISTOR
	R16	QRD161J-562	RESISTOR
	R17	QRD161J-822	RESISTOR
	R18	QRD161J-822	RESISTOR
	R20	QRD161J-104	RESISTOR
	R21	QRD161J-122	RESISTOR
	C1	QEP61CM-106	NP E CAPACITOR
	C2	QEP61CM-106	NP E CAPACITOR
	C6	QETC1CM-106	E CAPACITOR
	C8	QETC1CM-476	E CAPACITOR
	C9	QETC1CM-106	E CAPACITOR
	C11	QETC1CM-476	E CAPACITOR

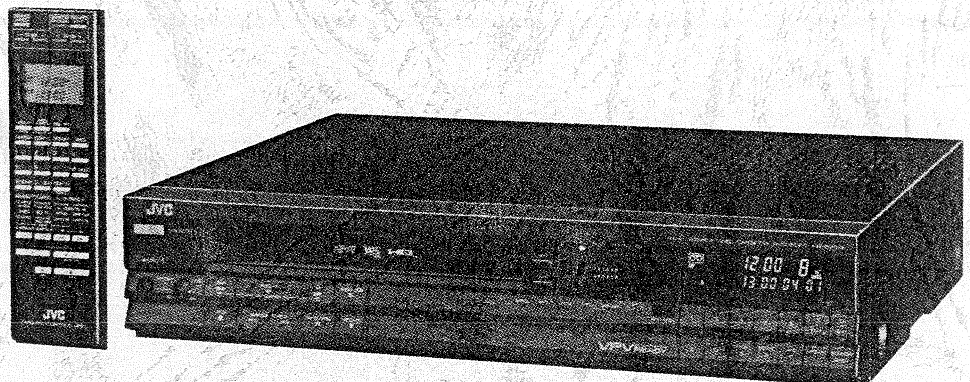
#⚠	REF NO.	PART NO.	PART NAME, DESCRIPTION

JVC

SERVICE MANUAL

Hi-Fi STEREO VIDEO-KASSETTEN-REKORDER VHS PAL

HR-D750EG EINSTELLANWEISUNG



HQ

VIDEOTEXT PROGRAMMING VPV READY

INDEX VHS INDEX SEARCH SYSTEM

TECHNISCHE DATEN

Format	: VHS PAL-Standard plus Hi-Fi Audio
Video-Aufnahmesystem	: Rotierendes Zweikopfsytem, Schrägspurabtastung mit im Winkel versetzten Köpfen, ein Dual-Azimut-Kombinationskopf
Hi-Fi Audio-Aufnahmesystem	: Tiefschicht-Aufnahmesystem nach dem Stereo Hi-Fi VHS Standard
Zahl der Audiokanäle	: 2 Hi-Fi-Audiokanäle 1 herkömmlicher Audiokanal
Video-Signalsystem	: PAL-Farb- und CCIR-Monochromsignale, 625 Linien
Bandbreite	: 12,65 mm
Bandgeschwindigkeit	
(SP)	: 23,39 mm/Sek.
(LP)	: 11,70 mm/Sek. (nur Hi-Fi Audio)
Maximal-Spieldauer	
(SP)	: 240 Min. mit E-240-Kassette
(LP)	: 480 Min. mit E-240-Kassette (nur Hi-Fi Audio)
Temperaturbedingungen	
Betrieb	: 5°C bis 40°C
Lagerung	: –20°C bis 60°C
Spannungsversorgung	: 220 V∿, 50/60 Hz
Leistungsaufnahme	: 35 W
Video	
Eingang	: 0,5 bis 2,0 Vs-s, 75 Ohm, unsymmetrisch
Ausgang	: 1,0 V-s-s, 75 Ohm, unsymmetrisch
Störspannungsabstand	: 43 dB (Rohde u. Schwarz-Geräuschmesser) bei BILDSCHÄRFE-Regler in Mittenposition
Horizontale Auflösung	: 250 Linien bei BILDSCHÄRFE-Regler in Mittenposition
Audio	
Eingang	: MIKROFON: -67 dBs, hochohmig, unsymmetrisch AUDIO EING.-Buchse (RCA x 2): -8 dBs, 50 kOhm, unsymmetrisch AUDIO/VIDEO-Buchse (21pol. Peri): –3,8 dBs (CENELEC-Norm), 10 kOhm, unsymmetrisch
Ausgangspegel	: AUDIO/VIDEO-Buchse (21pol. Peri): –3,8 dBs (CENELEC-Norm), hochohmig AUDIO AUSG.-Buchse (RCA x 2): –6 dBs, hochohmig
Ausgangsimpedanz	: Weniger als 1 kOhm, unsymmetrisch
Störspannungsabstand	: Mehr als 40 dB
Frequenzbereich	: 70 Hz bis 10.000 Hz
Hi-Fi Audio	
Frequenzgang	: 20 Hz bis 20.000 Hz
Dynamikbereich	: Mehr als 90 dB
Gleichlaufschwankungen	: Weniger als 0,005 % WRMS
Fernseh-Tuner/HF-Teil	
Kanalspeicherkapazität	: 48 Kanäle
Antenneneingang	: VHF 47 – 89 MHz 104 – 300 MHz 302 – 470 MHz UHF 470 – 862 MHz
Antennenausgang	: UHF-Kanäle 32 – 40 (Regelbar)
Digitaluhr/Schaltuhr	
Uhranzeige	: 24-Stunden-Fluoreszenzdisplay mit Tages- und Datumanzeige
Referenzfrequenz	: Quarzsteuerung
Startzeiteinstellung	: Innerhalb von 1 Jahr
Programmierleistung	: 8 Programme
Abmessungen	: 435 mm(B) x 95 mm(H) x 332 mm(T)
Gewicht	: 6,8 kg
Mitgeliefertes Zubehör	: Antennenkabel, Infrarot-Fernbedienung, R6-Batterie x 2, Audiokabel (RCA-RCA)
Sonderzubehör	: VPV-Adapter (VU-V120E)

Die technischen Angaben beziehen sich, sofern nicht anders angegeben, auf die SP-Betriebsart.

Technische Änderungen vorbehalten.

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No. 82067VD
March 1989

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ABSCHNITT 1
MECHANISCHE EINSTELLUNG

1.1 ALLGEMEINE BESCHREIBUNG

1.1.1 Vorsichtsmaßregeln

WICHTIG:

1. Das Gerät vor dem Ausbau oder Löten von Bauteilen vom Stromnetz abtrennen.
2. Beim Abnehmen von Befestigungsteilen (Schrauben, Unterlegscheiben usw.) darauf achten, diese nicht in den Mechanismus fallen zu lassen. Falls eine Unterlegscheibe in den Mechismus fällt, diese immer entfernen.
3. Der Bandtransportmechanismus wurde im Werk präzise eingestellt und braucht normalerweise nicht nachgestellt zu werden.
4. Beim Ausbauen von Teilen darauf achten, nicht andere Teile zu beschädigen oder auszubauen. (Besonders vorsichtig mit den Bandführungen und der Drehkopf-Videotrommel umgehen.)
5. Für Wartungsarbeiten, die erfordern, daß der Cassettenschacht vom Haupt-Deck getrennt wird, die unten aufgeführten Schritte befolgen.

1) Eine Platte isoliertes Material rechts neben das Chassis legen.
2) Den Cassettenschacht vom Haupt-Deck ausbauen und auf das isolierte Material legen, ohne dabei die Steckverbindung von der MAIN Platine abzutrennen.
3) Eine Cassette in den Cassettenschacht legen. Der Schachtmechanismus zieht die Cassette ein.
4) Den Fototransistor-Sensor (END SENSOR) auf dem Haupt-Deck mit einer undurchsichtigen Abdeckung abdecken.
5) Die gewünschten Betriebsarten können mit den Bedienungstasten eingestellt werden.

1.1.2 Erforderliche Prüfgeräte, Halterungen und Einstellehren

Für richtige mechanische Einstellung werden die folgenden Werkzeuge und Haltevorrichtungen dringend empfohlen. Ohne diese wäre eine lange Testbetriebszeit erforderlich, und das Gerät könnte möglicherweise beschädigt werden. Außerdem werden Normalwerkzeuge gebraucht.

1. Erforderliche Prüfgeräte
   Farbfernseher oder Monitor
   Oszilloskop: Breitband, Zweikanal, getriggert, verzögerte Zeitbasis
   Aufnahmeband
   Abgleichband

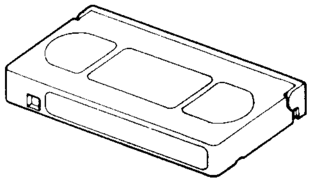
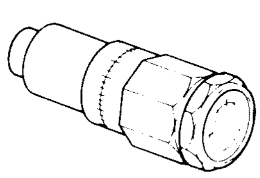
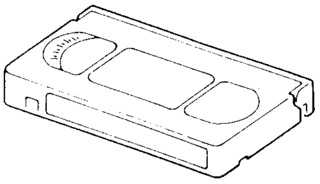
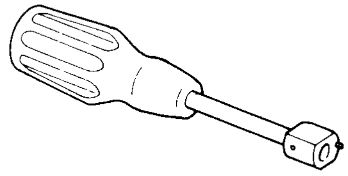
JVC-Abgleichband MH-2 	Drehkraftmessungs-Baugruppe PUJ48075-2 	Bandzug-Meßcassette PUJ48076-2 
A/CTL Kopfpositionierungs-Werkzeug PUJ47351-2 		

Tabelle 1-1-1 Werkzeuge und Einstellehren

1.1.3 Demontage

1. Oberabdeckung
1) Fünf Schrauben von der linken, rechten und hinteren Seite des Gerätes abnehmen.
2) Das hintere Ende der Oberabdeckung zuerst abheben, und dann die Abdeckung ganz abnehmen.

2. Frontplatte
1) Die Oberabdeckung abnehmen.
2) Die drei oberen Haken der Frontplattenbaugruppe nach oben biegen, so daß sie aus ihren Chassishalterungen gelöst werden.
3) Die drei unteren Haken von der Unterseite des Geräts lösen, um die Frontplattenbaugruppe vom Chassis abzunehmen.

3. Boden platte
1) Die drei Schrauben von der Unterseile des Garäles enffernen.
2) Die Boden-platte von den sechs Haltern am Chassis lösen, um die Boden-platte zu entfernen.

4. Kassettenschachtklappe
1) Die Frontplattenbaugruppe entfernen.
2) Die Mitte der Kassettenschachtklappe nach vorne biegen, und dann das rechte Ende vom Kassettenschacht abziehen.
3) Auf die Drehfeder achten, und das linke Ende der Kassettenschachtklappe herausziehen.

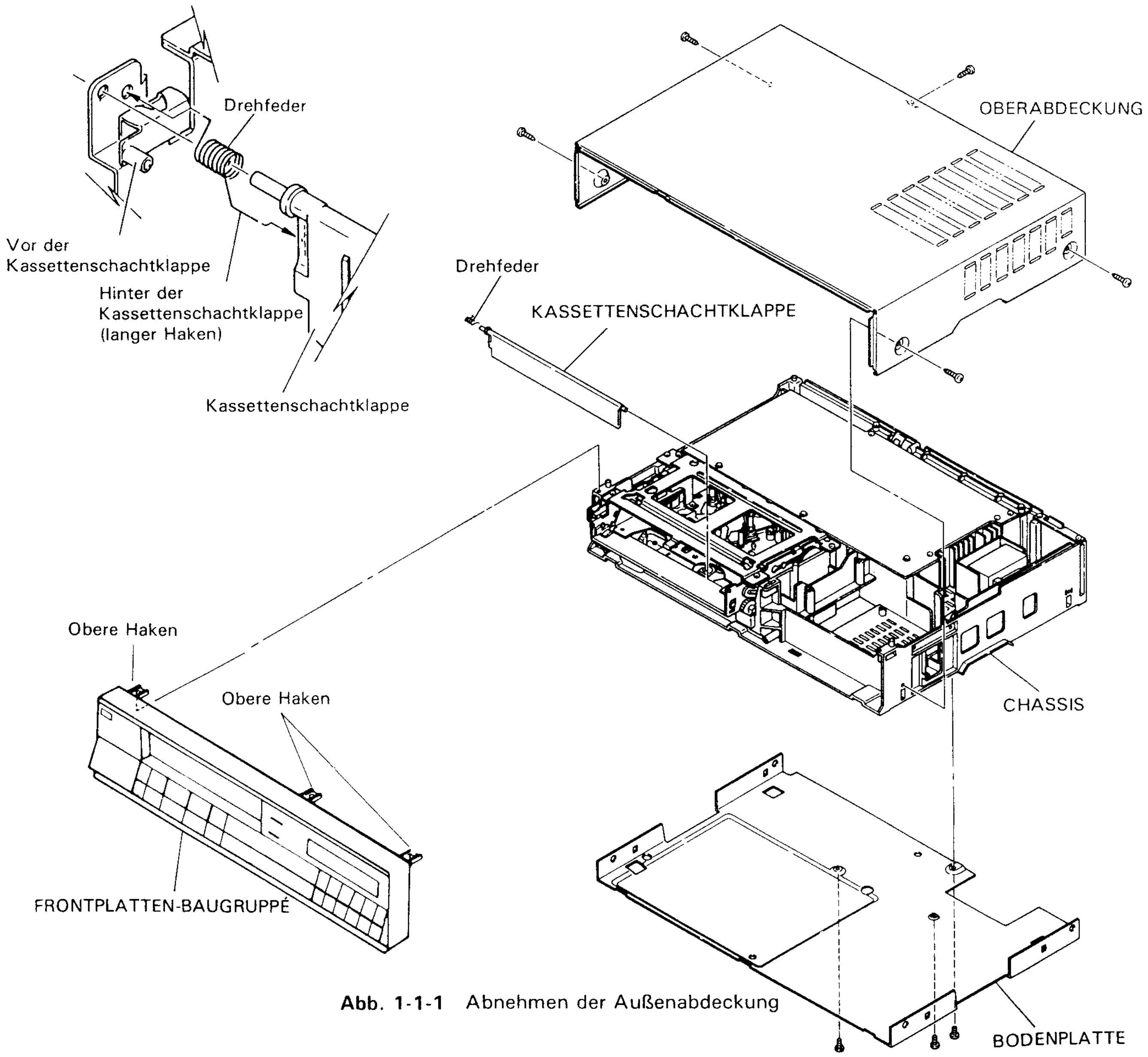

Drehfeder
Vor der Kassettenschachtklappe
Hinter der Kassettenschachtklappe (langer Haken)
Kassettenschachtklappe
Drehfeder
KASSETTENSCHACHTKLAPPE
OBERABDECKUNG
CHASSIS
Obere Haken
Obere Haken
FRONTPLATTEN-BAUGRUPPE
BODENPLATTE

Abb. 1-1-1 Abnehmen der Außenabdeckung

1.1.4 Anordnung der Haupt-teile

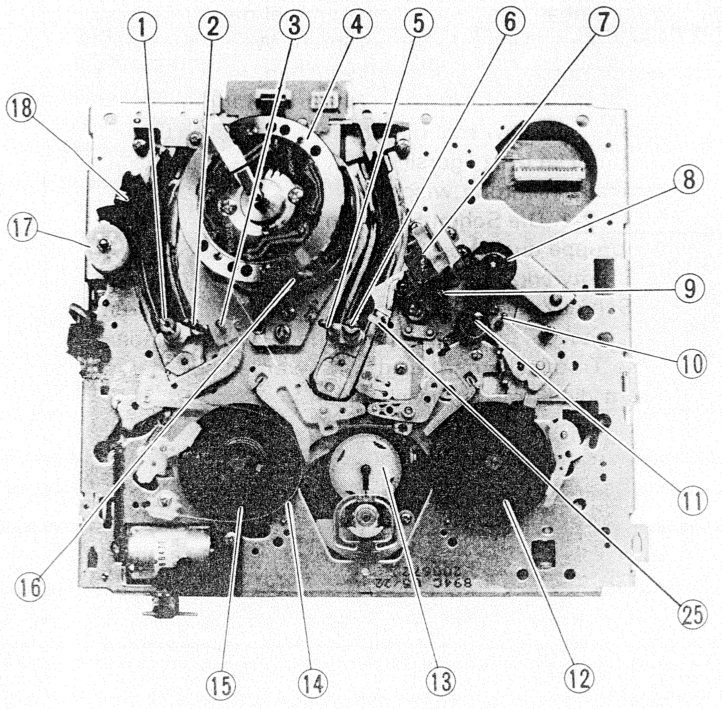


Abb. 1-1-2 Haupt-Deck von oben gesehen

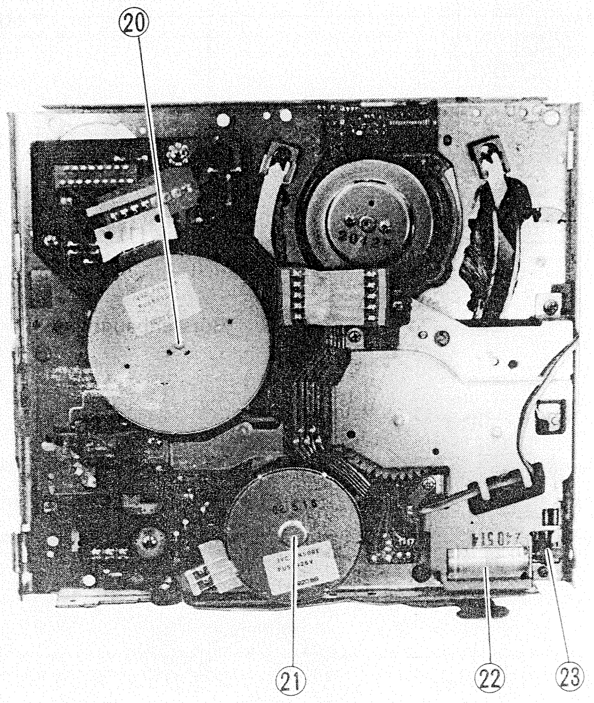


Abb. 1-1-3 Haupt-Deck von unten gesehen

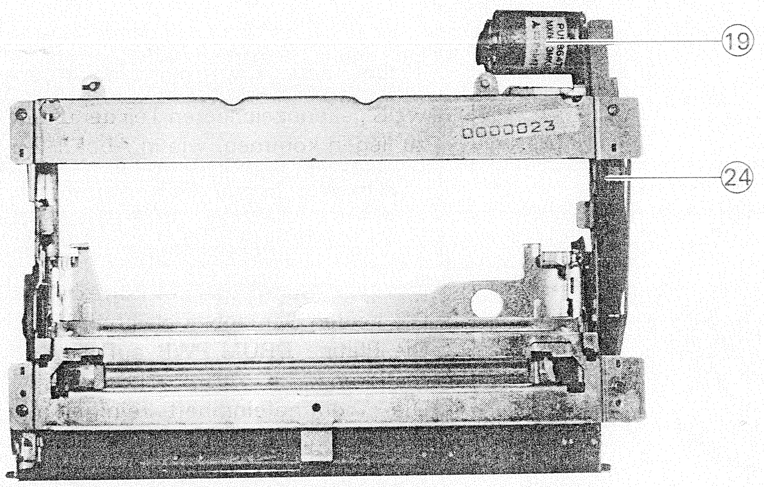
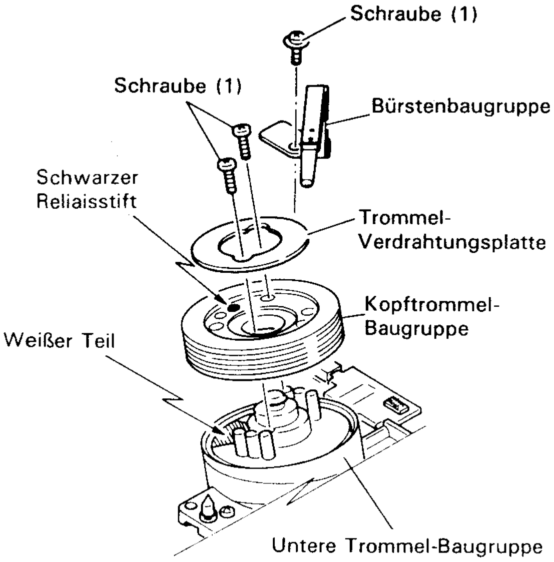
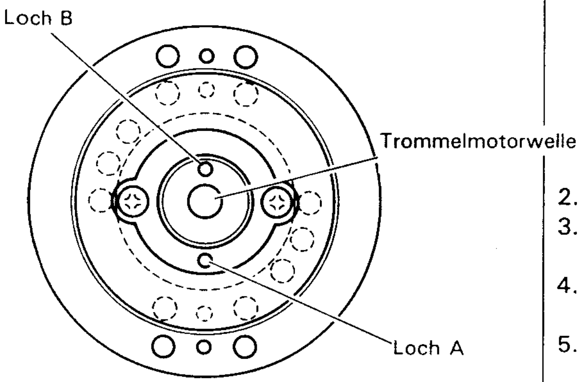
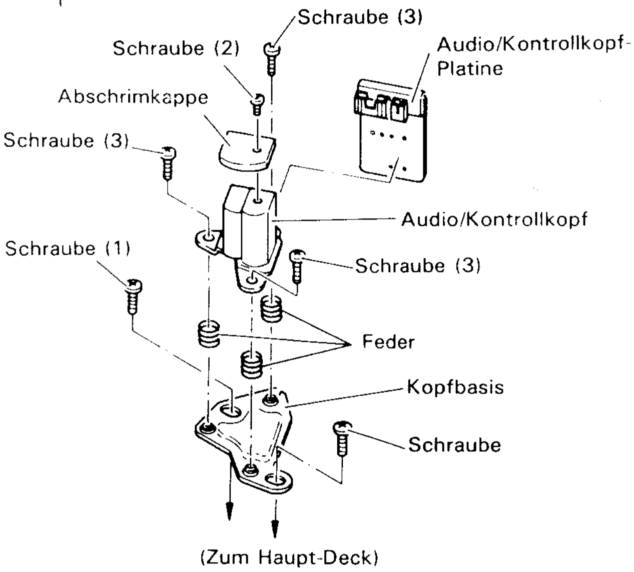
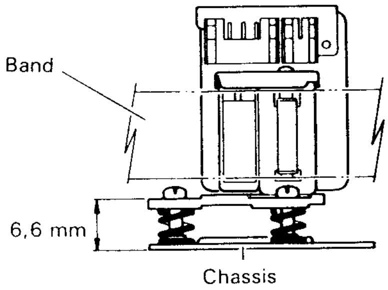


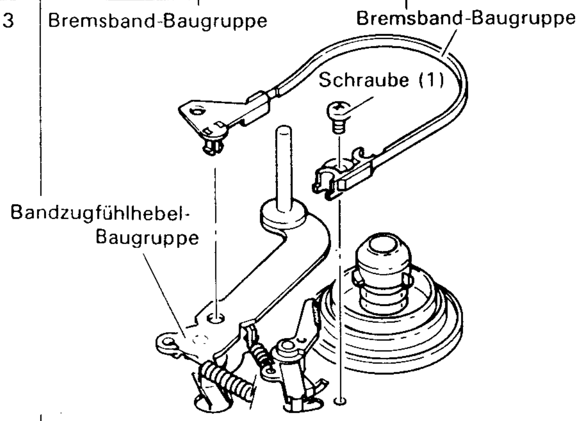
Abb. 1-1-4 Cassettenschacht

1. Abwickel-Führungsrolle
2. Abwickel-Kipprolle
3 Bandzugfühlstift
4. Kopftrommel
5. Aufwickel-Kippstift
6. Aufwickel-Führungsrolle
7. Audio/Kontrollkopf (A/C)
8. Andruckrolle
9. Aufwickel-Führungsstift
10. Führungsarm
11. Capstanwelle
12. Aufwickel-Bandteller
13. Spulenkupplung
14. Bremsband
15. Abwickel-Bandteller
16. Untere Trommel
17. Impedanzrolle
18. Vollöschkopf
19. Cassettenmotor
20. Capstanmotor
21. Spulenmotor
22. Betriebsartenmotor
23. Motorsteuerriemen
24. Cassettenriemen
25. Halbeinzugpol

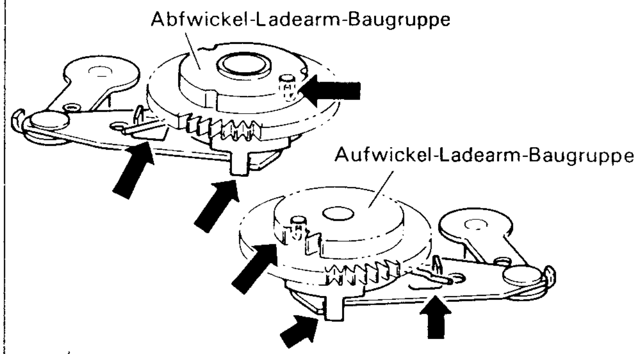
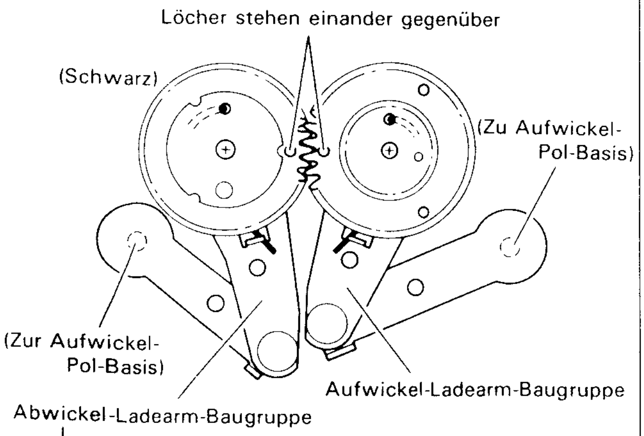
1.2 AUSTAUSCH DER HAUPTBAUGRUPPEN

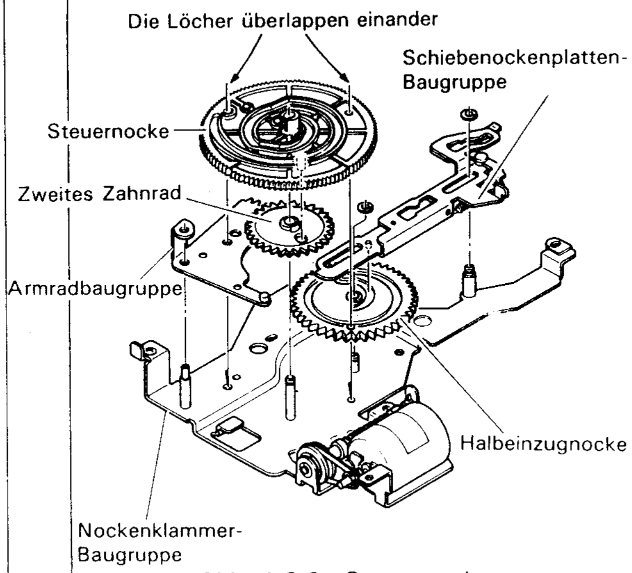
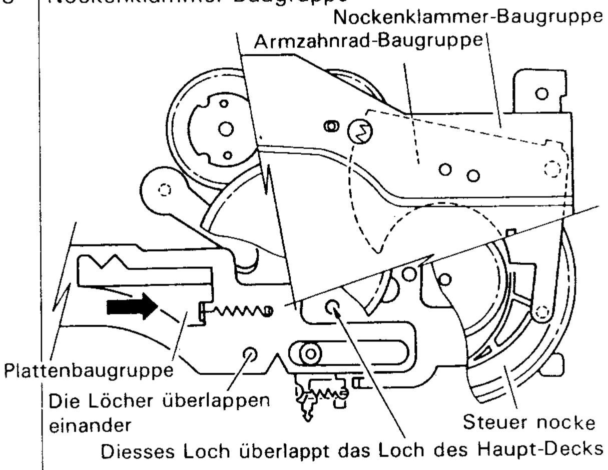
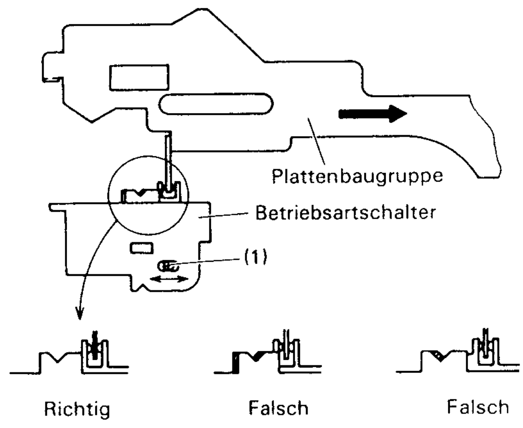
Nr.	Einstellung	Einstellpunkt	Betriebsart	Einstellschritte
1	Ober Trommel —Ausbau—  Schraube (1) Schraube (1) Bürstenbaugruppe Schwarzer Reliaisstift Trommel-Verdrahtungsplatte Kopftrommel-Baugruppe Weißer Teil Untere Trommel-Baugruppe **Abb.1-2-1** Kopftrommel-Baugruppe			**Hinweis:** Beim Einbau der neuen Kopftrommel darauf achten, nicht die Videoköpfe zu berühren. Wenn die Köpfe verschmutzt sind, mit einem weichen, feinen und mit Alkohol befeuchteten Baumwollappen oder Fensterleder abwischen. Nur leicht andrücken und die Trommel im Uhrzeigersinn drehen. Auf keinen Fall in vertikaler Richtung wischen. 1. Siehe Abb. 1-2-1. Die Schraube (1) entfernen und dann die Bürstenbaugruppe ausbauen. 2. Mit einem Entlötwerkzeug die Kopftrommelplatinen freilöten. 3. Die beiden Schrauben (2) entfernen und die Kopftrommel zum Ausbauen anheben, zusammen mit der Trommelplatine. (Wenn diese Trommel erneut eingebaut werden soll, darauf achten, nicht die Köpfe zu beschädigen.)
	- Einbau -  **Abb. 1-2-2** Polarität der Kopftrommel			1. Eine neue Kopftrommelbaugruppe so einbauen, daß die schwarzen Relaisstifte der Kopftrommelbaugruppe über dem weiß gekennzeichneten Teil der unteren Trommelbaugruppe zu liegen kommen, wie in Abb. 1-2-1 gezeigt. **Hinweis:** Immer die Kopftrommel richtig positionieren. Wie in Abb. 1-2-2 gezeigt, das Loch A der Kopftrommel gegenüber der Welle von Loch B der unteren Trommel plazieren. Vor dem Festziehen der Schrauben auf korrekte Position prüfen. 2. Die beiden Schrauben gleichmäßig festziehen. 3. Die Platine DRUM PWB auf die Kopftrommel setzen und festlöten. 4. Die Trommeleinmheit reinigen (besonders die obere Trommelbaugruppe). 5. Die Bürstenbaugruppe in Ausgangsstellung anbringen, und dann die Bürstengruppen-Halteschraube festziehen.
	— Prüfungen und Einstellungen —			Nach dem Einbau der Kopftrommel die folgenden Prüfungen und Einstellungen durchführen (siehe entsprechende Abschnitte dieser Anleitung). 1. FM-Wellenform 2. Servoschaltkreis 3. Videoschaltkreis

Nr.	Einstellung	Einstellpunkt	Betriebsart	Einstellschritte
2	Audio/ Kontrollkopf (A/C)			
	—Ausbau—  Schraube (3) Schraube (2) Audio/Kontrollkopf-Platine Abschrimkappe Schraube (3) Audio/Kontrollkopf Schraube (1) Schraube (3) Feder Kopfbasis Schraube (Zum Haupt-Deck) **Abb. 1-2-3** Audio/Kontrollkopf			1. Die an die Audio/Kontrollkopfplatine angeschlossenen Stecker abtrennen. 2. Zwei Schrauben (1) herausnehmen und den Audio/Kontrollkopf zusammen mit der Kopfbasis entfernen. 3. Die Audio/Kontrollkopfplatine freilöten und vom Audio/Kontrollkopf entfernen. 4. Die Schraube (2) herausnehmen und den Audio/Kontrollkopf von der Kopfbasis entfernen. Auf die drei Federn achten. 5. Die drei Schrauben (3) entfernen und den Audio/Kontrollkopf von der Kopfbasis abnehmen. Mit den drei Federn vorsichtig umgehen.
	- Einbau —  Band 6,6 mm Chassis **Abb. 1-2-4** Audio/Kontrollkopf-Höhe			1. Den Audio/Kontrollkopf mit den gleichen Schritten wie oben aber in umgekehrter Reihenfolge montieren. 2. Provisorisch die Audio/Kontrollkopfhöhe über dem Chassis auf 6,6 mm einstellen (siehe Abb. 1-2-4).
	— Prüfungen und Justierungen —			1. Mit einem Band (kein Abgleichband) den richtigen Betrieb des Bandtransports prüfen (siehe Kapitel 1.5). 2. Die Austauschbarkeit-Einstellung durchführen (siehe Kapitel 1.6).

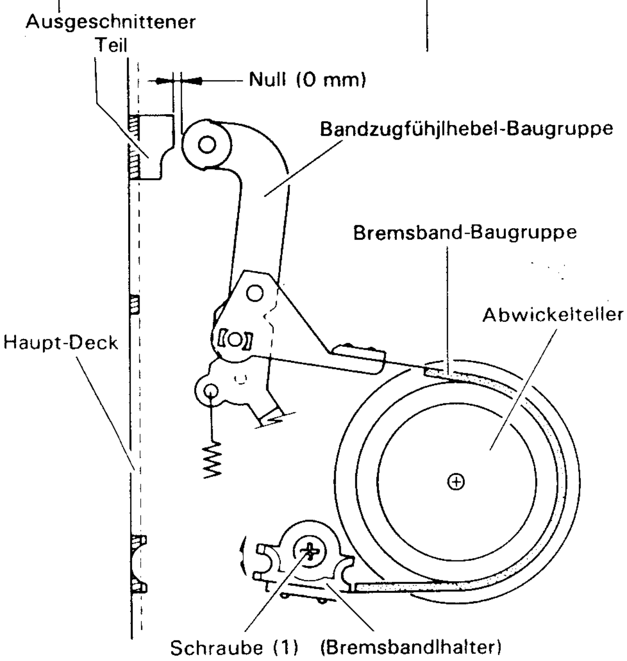
Nr.	Einstellung	Einstellpunkt	Betriebsart	Einstellschritte
3	Bremsband-Baugruppe  Bremsband-Baugruppe Schraube (1) Bandzugfühlhebel-Baugruppe Abb. 1-2-5 Bremsband-Baugruppe			1. Die Schraube (1) herausnehmen und die Spannband-Baugruppe von der Spannarm-Baugruppe trennen (siehe Abb. 1-2-5). 2. Die Spannbandbaugruppe entfernen und austauschen. 3. Die Spannpolposition-Einstellung durchführen (siehe Kapitel 1.4).

1.3 MONTAGE DES MECHANISMUS

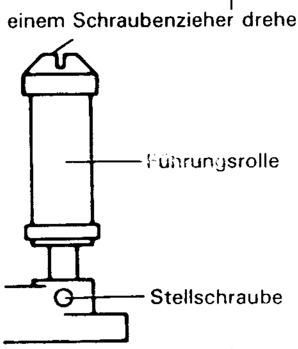
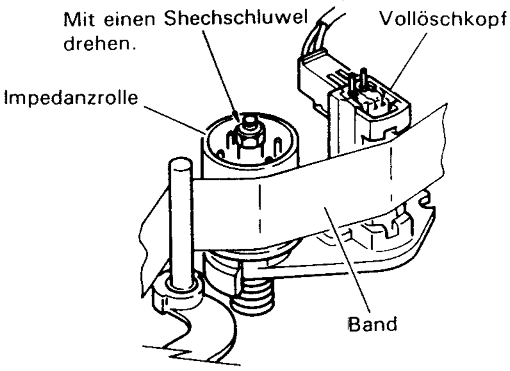
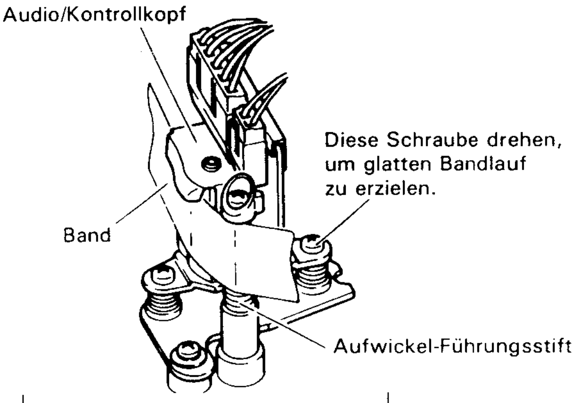
Nr.	Einstellung	Einstellpunkt	Betriebsart	Einstellschritte
	Eine enge Beziehung besteht zwischen dem Betriebsartenschalter und der Mechacon-Schaltung. Darum bestimmt der Betriebsartenschalter und der Kontrollarm die mechanische Funktion von Hebeln, Rädern, Walzen etc. Wenn diese Teile nicht richtig positioniert sind, blockiert die Mechanik in Stopp-Betriebsart.			
1	Ladearm-Baugruppe  Abfwickel-Ladearm-Baugruppe Aufwickel-Ladearm-Baugruppe Abb. 1-3-1 Ladearm-Baugruppe (1)  Löcher stehen einander gegenüber (Schwarz) (Zu Aufwickel-Pol-Basis) (Zur Aufwickel-Pol-Basis) Aufwickel-Ladearm-Baugruppe Abwickel-Ladearm-Baugruppe Abb. 1-3-2 Ladearm-Baugruppe (2)			Diese Baugruppen bestehen aus Aufnahmerädern, Drehfedern und Einzugarmen. 1. Unter Bezung auf Abb. 1-3-1 die Einzugarm-Baugruppen richtig montieren. 2. Die Stellungen von Aufnahmearm und Zuführarm im Hinblick auf die Einzuglöcher sind in Abb. 1-3-2 angegeben. Diese Konfiguration ist wichtig, um zum nächsten Betriebsvorgang umzuschalten.

Nr.	Einstellung	Einstellpunkt	Betriebsart	Einstellschritte
2	Steuer nocke  Die Löcher überlappen einander Schiebenockenplatten-Baugruppe Steuernocke Zweites Zahnrad Armradbaugruppe Halbeinzugnocke Nockenklammer-Baugruppe **Abb. 1-3-3** Steuer nocke			1. Die Halbeinzugnocke auf der Nockenklammerbaugruppe montieren, und dann die Schiebenockenplatten-Baugruppe so anbringen, daß der Stutzen in die Rille auf den Halbeinzugnocken paßt. 2. Die Armradbaugruppe auf der Nockenklammerbaugruppe montieren. 3. Das zweite Rad und die Steuernocke so montieren, daß der Stutzen der Steuernocke in das Loch des zweiten Zahnrads paßt. 4. Die obige Baugruppe (Steuernocke und zweites Zahnrad) auf der Nockenklammer-Baugruppe so montieren, daß die in der Abbildung gezeigte Beziehung besteht. 5. Für den nächsten Schritt nicht die Steuernocke aus der Position drehen.
3	Nockenklammer-Baugruppe  Nockenklammer-Baugruppe Armzahnrad-Baugruppe Plattenbaugruppe Die Löcher überlappen einander Steuer nocke Diesses Loch überlappt das Loch des Haupt-Decks **Abb. 1-3-4** Nockenklammer-Baugruppe			1. Unter Beachtung von Abb. 1-3-4 die Plattenbaugruppe so nach rechts drücken, daß das angezeigte Loch mit dem des Hauptdecks überlappt. 2. Dann die Nockenklammer-Baugruppe installieren. **Hinweis:** Wenn Arm und Einzugräder nicht richtig eingreifen, mit ot einem Uhrmacher-Schraubenzieher oder ähnlichen Werkzeug beim Einbauen der Nockenklammer-Baugruppe die Getriebezähne einrasten.
4	Betriebsart-Umschaltstellung  Plattenbaugruppe Betriebsartschalter (1) Richtig Falsch Falsch **Abb. 1-3-5** Betriebsartschalter			1. Die Plattenbaugruppe und den Betriebsartenschalter wie in Abb. 1-3-5 gezeigt einrasten lassen. Die Schraube (1) teilweise festziehen, bis der Punkt erreicht ist, wo der Schalter immer noch zum Einstellen der Position bewegt werden kann. 2. Die Plattenbaugruppe nach rechts drücken, bis der Punkt erreicht ist, wo die Löcher überlappen, wie in Abb. 1-3-4 gezeigt. Einen Uhrmacher-schraubenzieher einstecken, um die Löcher angeglichen zu halten. 3. Den Betriebsartenschalter bewegen, um die V-Kerbe wie in Abb. 1-3-5 gezeigt anzugleichen. Dann Schraube (1) zum Sichern festiziehen. 4. Den Uhrmacher-schraubenzieher entfernen, und dann die platine erneut einbauen und festlöten.

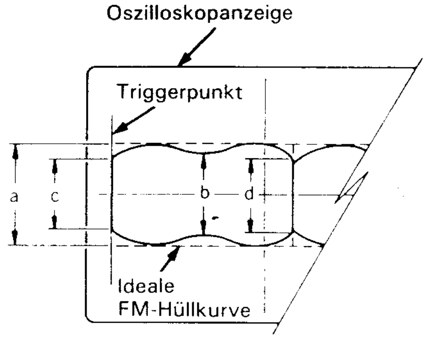
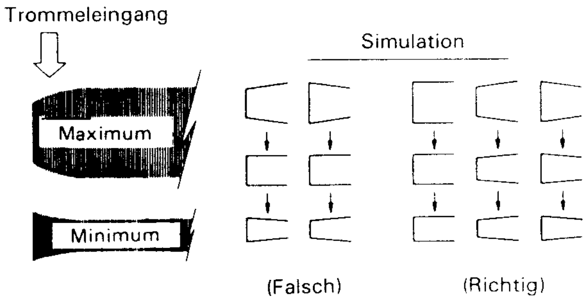
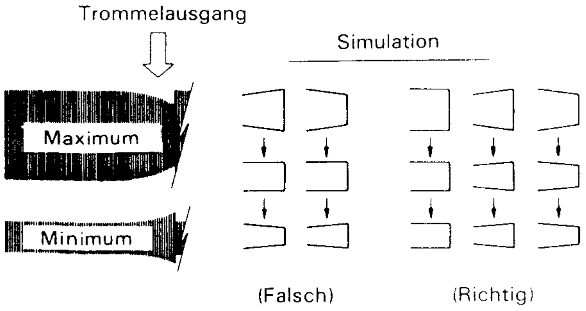
1.4 ANORDNUNG UND EINSTELLUNG

Nr.	Einstellung	Einstellpunkt	Betriebsart	Einstellschritte
1	Bondzugfühlhebelposition  Ausgeschnittener Teil Null (0 mm) Bandzugfühjlhebel-Baugruppe Bremsband-Baugruppe Abwickelteller Haupt-Deck Schraube (1) (Bremsbandhalter) **Abb. 1-4-1** Bandzugfühstiftposition			1. Ohne eingelegtes Kassettenband auf Wiedergabe-Betriebsart schalten (siehe Kapitel 1.1). 2. Unter Beachtung von Abb. 1-4-1 leicht die Schraube (1) lösen. Die Spannbandhalterposition auf 0 mm Abstand zwischen Spannarm und Ausschnittposition feststellen. 3. Die Schraube (1) festziehen, um den Spannbandhalter zu sichern. 4. Die Rückhalte-Kassettenlehre verwenden und auf Wiedergabe schalten. 5. Auf eine Skalenablesung von 25 bis 75 prüfen. 6. Wenn der Wert außerhalb dieses Bereichs liegt, die Spannband-Berührungsteile der Aufwickelspule mit Alkohol reinigen, oder den Zustand der Spannarmfeder prüfen. Wenn erforderlich, die Spannband-Baugruppe austauschen.
2	Aufwickel-Drehmoment			1. Ohne eingelegtes Kassettenband auf Wiedergabe schalten (siehe Abschnitt 1.1). 2. Die Drehkraft-Meßuhr auf die Aufwickelspule setzen. 3. Die Drehkraft-Meßuhr leicht anfassen, so daß sie sich dreht, und den Wert ablesen, wenn die Skala der Anzeigenadel entspricht. Einen Wert zwischen 45 und 155 bestätigen. 4. Wenn der Wert außerhalb dieses Bereichs liegt, den Gummiteil des Leerlaufarms mit Alkohol reinigen oder wenn erforderlich die Spulenmotor-Treiberschaltung prüfen.

1.5 PRÜFUNGEN UND JUSTIERUNGEN DES BANDTRANSPORTSYSTEMS

Nr.	Einstellung	Einstellpunkt	Betriebsart	Einstellschritte
	Das Bandtransportsystem wurde ab Werk präzise eingestellt und braucht normalerweise nicht gewartet zu werden. Einstellung kann aber nach langem Einsatz oder nach dem Austausch von Teilen, die den Bandtransport beeinflussen, erforderlich werden. Die folgenden Schritte beschreiben Vorbereitungen für die Austauschbarkeit-Einstellungen von Kapitel 1.6.			
1	Führungsrollen  Mit einem Schraubenzieher drehen Führungsrolle Stellschraube **Abb. 1-5-1** Führungsrolle			1. Bei den Austauschbarkeit-Einstellungen wird die Führungswalze mit einem Schlitzschraubenzieher gedreht, um die Höhe und richtige Linearität der FM-Hüllkurve einzustellen. Einen metrischen Sechskantschlüssel (1,25 mm) verwenden, um die Stellschraube an der Basis der Führungsrolle leicht zu lösen (siehe Abb. 1-5-1). Die Stellschraube nur ausreichend lösen, um Drehung der Führungsrolle zu ermöglichen. Wenn zu lose gestellt wird, wird der Bandtransport zu unstabil, um richtige Einstellung zuzulassen.
2	Impedanzrolle  Mit einen Shechschluwel drehen. Vollöschkopf Impedanzrolle Band **Abb. 1-5-2** Impedanzrolle			1. Dadurch wird die Bandlaufstabilität zwischen Kassette und Kopftrommel kompensiert. Nach dem Einstellen der Zuführwalze wird die Impedanzwalzenhöhe für glatten Bandtransport am unteren Flansch eingestellt. 2. Mit einem Mutterndreher (5,5 mm) die obere Mutter zum Einstellen drehen (siehe Abb. 1-5-2). Darauf achten, daß durch exzessives Drehen die Stabilität der FM-Hüllkurve gestört werden kann.
3	Audio/Kontrollkopf (A/C)  Audio/Kontrollkopf Diese Schraube drehen, um glatten Bandlauf zu erzielen. Band Aufwickel-Führungsstift **Abb. 1-5-3** Audio/Kontrollkopf			1. Nach dem Einstellen der Aufwickelspule die Neigung des Audio/Kontrollkopfes für glatten Bandlauf am unteren Flansch des Aufnahmeführungspols einstellen. Siehe Abb. 1-5-3.

1.6 AUSTAUSCHBARKEIT-PRÜFUNGEN UND EINSTELLUNGEN

Nr.	Einstellung	Einstellpunkt	Betriebsart	Einstellschritte
	Vor der Verwendung von teurem Abgleichband ein Normalband verwenden und im Hinblick auf richtigen Bandtransport prüfen.			
1	FM-Hüllkurve $\frac{b}{a} \geqq 0{,}7$, $\frac{c}{a} \geqq 0{,}5$ und $\frac{d}{a} \geqq 0{,}5$  Oszilloskopanzeige Triggerpunkt a c b d Ideale FM-Hüllkurve Abb. 1-6-1 FM-Hüllkurve  Trommeleingang Simulation Maximum Minimum (Falsch) (Richtig) Abb. 1-6-2 Trommeleingang  Trommelausgang Simulation Maximum Minimum (Falsch) (Richtig) Abb. 1-6-3 Trommelausgang			1. Ein Oszilloskop an den Testpunkt FM OUT der Video-Wiedergabeschaltung anschließen. Das Oszilloskop extern mit dem Signal vom Trommel-Flipflop Testpunkt triggern (D-FF oder FF). 2. Das MH-2 Abgleichband abspielen und Tracking für maximale FM-Hüllkurve einstellen, siehe Abb. 1-6-1. Bestätigen, daß die Beziehung besteht, wie in der Abbildung für maximalen Aujsgang (a), minimalen Mittenausgang (b), minimalen Ausgant an der Trommelaufnahme (c) und minimalen Ausgang am Trommelauslaß (d) besteht. 3. Einstellung ist erforderlich, wenn die obigen Angaben nicht erfüllt werden. Auch wenn diese erfüllt werden, trotzdem prüfen, ob die FM-Hüllkurve insgesamt linear variiert. Wenn nicht, dann bewirkt leichte Variation in Tracking einen großen proportionalen Pegelabfall, der sich als Störung im Bild zeigt. In diesem Zustand darum mit den folgenden Prüfungen fortfahren und die Einstellungen wo erforderlich vornehmen. 4. Die Tracking-Einstellung zwischen minimalem und maximalem Ausgang der FM-Wellenform vornehmen. Den Teil der Wellenform beobachten, der dem Trommeleinlaß entspricht (siehe Abb. 1-6-2). Wenn Tracking eingestellt wird, sollte die geometrische Form dieses Teils der Hüllkurve konstant bleiben, auch wenn die Verstärkung zu- oder abnimmt. Wenn sich die Form ändert, wie durch die Beispiele für "falsch" in der Abbildung gezeigt, eine sorgfältige Einstellung der Höhe der Zuführwalze vornehmen. 5. Anschließend den Teil der Hüllkurve untersuchen, der dem Trommelausgang entspricht (siehe Abb. 1-6-3), bei gleichzeitiger Spureinstellung. Auch hier sollte nur die Verstärkung variieren, aber nicht die Hüllkurvenform. Wenn die Form variiert, wie in den Beispielen "falsch" in der Abbildung gezeigt, sorgfältig eine Einstellung der Höhe der Aufnahmeführungswalze vornehmen. 6. Die gesamte FM-Hüllkurve prüfen. Beide Führungswalzen fein einstellen, so daß die Variation so minimal und linear wie möglich ist. 7. Den Bandlauf an den Führungswalzen und Führungspolen beobachten. Bestätigen, daß das Band nicht knittert oder verwellt. Bestätigen, daß das Band richtig am unteren Flansch des Zuführführungspols entlangläuft. Sorgfältig die Höhe des Führungspols einstellen, wenn nötig. Diese Einstellung ist wichtig und beeinflußt die Wiedergabe der FM-Hüllkurve. Wenn am Pol der Aufnahmespule Knittern oder Verwellung auftritt, sorgfältig die Neigung des Audio/Kontrollkopfes einstellen, so daß das Band richtig am unteren Flansch des Führungspols entlangläuft. Schließlich die FM-Hüllkurve erneut prüfen.

<table>
<tr><th>Nr.</th><th>Einstellung</th><th>Einstellpunkt</th><th>Betriebsart</th><th>Einstellschritte</th></tr>
<tr><td>2</td><td colspan="4">Richtige Einstellung der Neigung des Audio/Kontrollkopfes ist wichtig, um guten Audioausgang und Signal/Rauschabstand zu gewährleisten. Starke Fehleinstellung kann Aufnahme des Kontrollsignals verhindern und Servo-Instabilität verursachen. Präzise Einstellung ist besonders für Modelle wichtig, die Band-Indexfunktion und Addressierfunktionen haben, denn diese arbeiten mit Kontrollsignalcodierung. Zum Beobachten des Audiosignals ein Oszilloskop an den Testpunkt der Audioschaltung anschließen (AUDIO OUT), oder direkt an den Audioausgang. In manchen Fällen kann es nützlich sein, den Ton mit Kopfhörern zu überwachen.</td></tr>
<tr><td>2</td><td colspan="2">Audio/Kontrollkopfeinstellung

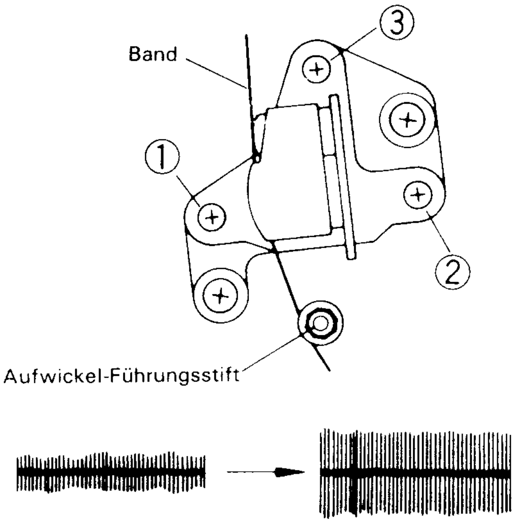


Abb. 1-6-4 Audio/Kontrollkopf</td><td></td><td>1. Das Treppenstufensignal (Audio 6 kHz) des MH-2 Abgleichbandes abspielen.
2. Die Schraube (3) (Abb. 1-6-4) einstellen, die die Azimuteinstellung für maximalen Ausgang darstellt.
3. Die Schrauben (1), (2) und (3) in kleinen und gleichen Stufen (jeweils um etwa 45°) drehen, um den Audio/Kontrollkopf auf maximalen Audioausgang einzustellen. Leicht die Höhe heben und senken, um maximale Ausgangsstellung zu bestätigen.
4. Die FM-Hüllkurve beobachten und die Einstellschrauben der Führungswalze festziehen. Darauf achten, nicht die Höheneinstellung zu ändern. Dann erneut die FM-Hüllkurve bestätigen.</td></tr>
<tr><td>3</td><td colspan="4">Dadurch wird der Abstand zwischen Ton und Bild auf dem Band bestimmt. Richtige Einstellung ist wichtig, um Synchronisation von Bild und Ton im Programm zu erzielen. Die FM-Hüllkurve druch Anschluß eines Oszilloskops an den Video-Testpunkt (FM OUT) beobachten. Das Oszilloskop extern mit dem Trommel-Flipflop-Signal triggern. Einen Plus-Trigger (+) verwenden, um die Hüllkurve von CH-2 zu sehen. Die Tracking-Einstellung in neutrale Position (AUTO) stellen.</td></tr>
<tr><td>3</td><td colspan="2">Kontrollkopf-Phase (X-Wert)

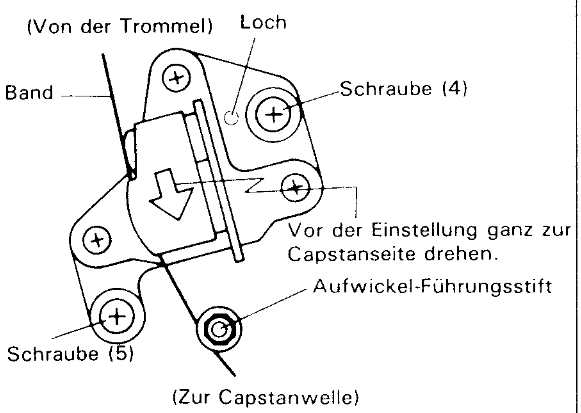


Abb. 1-6-5 Kontrollkopf-Phaseneinstellung</td><td></td><td>1. Das Treppenstufen-Signal des MH-2 Abgleichbandes abspielen.
2. Siehe Abb. 1-6-5. Leicht die Schrauben (4) und (5) lösen. Das Audio/Kontrollkopf-Positionierwerkzeug über die Schraube (4) setzen, wobei der Stift des Werkzeugs in das angezeigte Loch eingesetzt werden soll.
3. Das Werkzeug gegen den Uhrzeigersinn drehen, um den Audio/Kontrollkopf ganz in Kapstan-Richtung zu drehen.
4. Unter Beobachtung der CH-2 FM-Hüllkurve langsam das Werkzeug im Uhrzeigersinn drehen. In maximaler Ausgangsposition stoppen und die Schraube (5) festziehen. Das Werkzeug abnehmen und die Schraube (4) festziehen.
5. Die Tracking-Einstellung durchführen und bestätigen, daß die maximale FM-Hüllkurve in Neutral-Einstellung erzielt wird.
6. Wenn die FM-Ausgangsspitze nicht in der Neutralstellung für Tracking erzielt wird, den Audio/Kontrollkopf an der FM-Ausgangsspitze am nächsten zu dieser Stellung einstellen.</td></tr>
</table>

Nr.	Einstellung	Einstellpunkt	Betriebsart	Einstellschritte
4	Schlußprüfungen			1. Ein Video- oder Fernsehsignal (Monochrom ist vorzuziehen) anlegen. Ein Reserveband verwenden, und aufnehmen und abspielen. Bestätigen, daß das FM-Wiedergabesignal den Parametern entspricht, die in Abb. 1-6-1 angegeben sind. 2. Die Prüfungen und, wenn nötig Einstellungen, des Kapitels Elektrische Einstellung für die Servo-, Video- und Audioschaltungen durchführen.

ABSCHNITT 2
ELEKTRISCHE EINSTELLUNGEN

2.1 VORBEREITUNG

Elektrische Einstellungen sind erforderlich, nachdem Schaltkreisbauteile und bestimmte mechanische Teile ausgetauscht wurden.
Es ist wichtig, daß diese Einstellungen nur nach Beendigung aller Reparaturen und Austauschmaßnahmen durchgeführt werden. Diese Einstellungen außerdem nur vornehmen, wenn geeignete Ausrüstung zur Verfügung steht.

2.1.1 Erforderliche Prüfgeräte

1. Farbfernseher oder Monitor
2. Oszilloskop: Zweikanaloszilloskop mit verzögerter Zeitbasis
3. Frequenzzähler
4. Verzerrungsmesser
5. Rauschmesser
6. Audio-Oszillator
7. Audio-Voltmeter
8. Digital-Voltmeter
9. Signalgenerator: HF/ZF-Wobbler
10. Singalgenerator: PAL-Farbgenerator
11. Signalgenerator: Signalgenerator für Multiplex-Fernsehtonsignal
12. Aufnahmeband
13. Abgleichbänder: (MH-2)

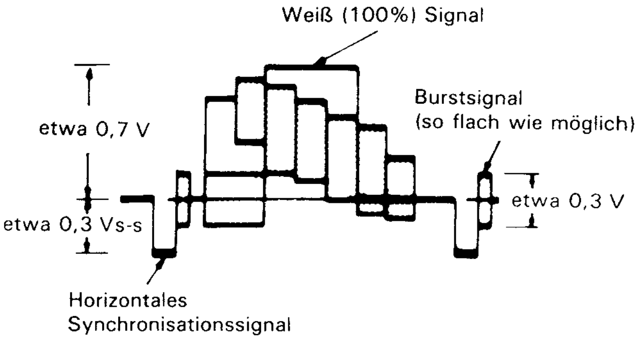

Weiß (100%) Signal
Burstsignal (so flach wie möglich)
etwa 0,7 V
etwa 0,3 V
etwa 0,3 Vs-s
Horizontales Synchronisationssignal

Abb. 2-1-1 Farbbalken vom Farbgenerator

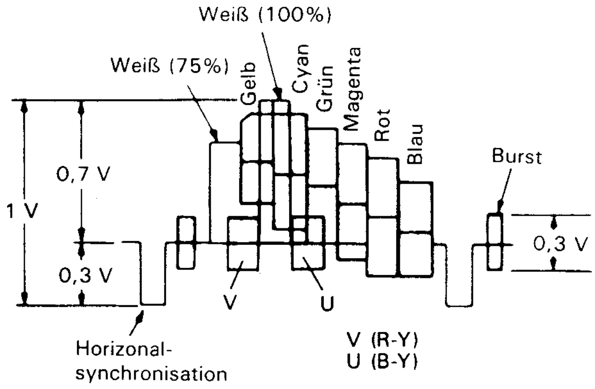

Weiß (100%)
Weiß (75%)
Gelb
Cyan
Grün
Magenta
Rot
Blau
Burst
0,7 V
1 V
0,3 V
0,3 V
V
U
Horizonal-synchronisation
V (R-Y)
U (B-Y)

Abb. 2-1-2 Farbbalkensignal-Hüllkurve

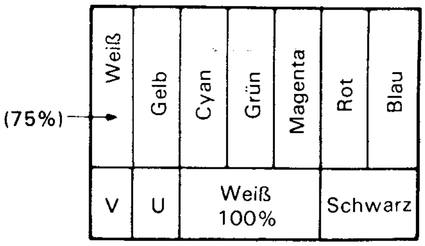

Weiß
Gelb
Cyan
Grün
Magenta
Rot
Blau
(75%)
V
U
Weiß 100%
Schwarz

Abb. 2-1-3 Farbbalken (MH-2)

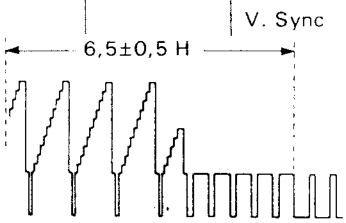
2.2 TIMER-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der TIMER-Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	Timer Clock	TP2	C10	• E-E	1. Einen Frequenzzähler zwischen TP2 und GND schalten. 2. Zwischen GND und TP3 (TEST) kurzschließen und dann die Leitungen des Elektrolytkondensators C8 einmal kurzschließen, um IC1 rückzustellen. 3. C10 auf 2048,000 ±0,002 Hz einstellen (488,2808 bis 488,2818 μs) einstellen.

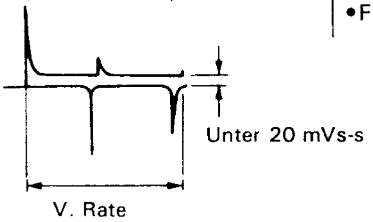
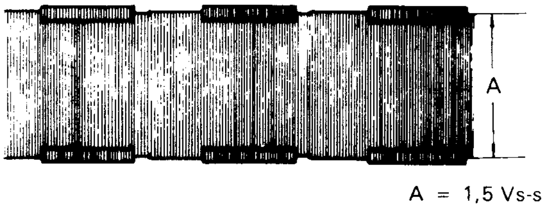
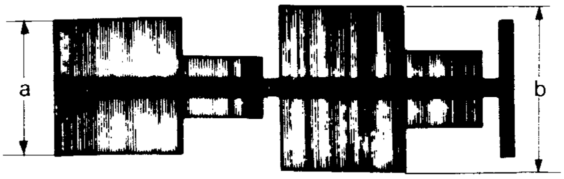
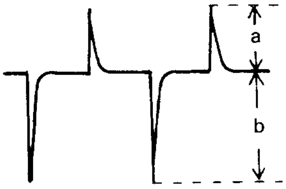
2.3 SERVO-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der MAIN-Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	PB Schaltpunkt	VIDEO OUT  Abb. 2-3-1	R465 (CH-1)	• PB • MH-2 Grautreppe • Negative Triggerflanke (−) • SP-Betriebsart	1. Ein Oszilloskop an VIDEO OUT anschließen. 2. Das Treppenstufensegment des MH-2 Abgleichbandes abspielen. 3. Das Oszilloskop extern mit dem Signal von TP411 (DRUM FF) triggern (-Flanke). 4. R465 einstellen, um den Triggerpunkt 6,5 ±0,5 H von V. sync. zu positionieren.
2	Slow Tracking	Monitor	R478	• Zeitlupe • SP-Betriebsart	1. Den Tracking-Regler vorne durch gleichzeitiges Drücken der Tasten + und − in Mittenstellung stellen. 2. Ein Farbbalkensignal in SP-Betriebsart aufzeichnen und dann in Zeitlupe wiedergeben. 3. R478 einstellen, um Rauschbalken im Monitor-Fernseherdisplay zu minimieren.
3	X2 Tracking	Monitor	R414	• X2 Wiedergabe • SP-Betriebsart	1. Den Tracking-Regler in Mittenstellung stellen. 2. Das Farbbalkensignal mit doppelter Geschwindigkeit abspielen. 3. R414 einstellen, um die Rauschbalken im Monitor-Fernseherdisplay zu minimieren.
4	V. Impulsposition (V. LOCK)	Monitor	R416	• REC und dann PB • Still-Betriebsart • Farbbalken	1. Ein Farbbalkensignal aufzeichnen, und dann in Standbildbetriebsart wiedergeben. 2. Den Monitor beobachten und R416 auf minimales vertikales Zittern einstellen.

2.4 VIDEO-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der MAIN-Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	Y NR (NC BAL)  **Abb. 2-4-1**	TP121	R112	•REC und dann PB •Farbbalken	1. Ein Farbbalkensignal aufzeichnen, und dann wiedergaben und dabei ein Oszilloskop an TP121 anschließen. 2. Wie in der Abbildung gezeigt R112 auf minimalen Unterschied im DC-Schritt einstellen.
2	REC FM Pegel  **Abb. 2-4-2**	TP2 (Pre/rec)	R204	•REC •Barbbalken •SP-Betriebsart	1. Ein Farbbalken-Eingangssignal anlegen. 2. Ein Oszilloskop an TP2 anschließen. 3. R204 so einstellen, daß der Austastpegel der vertikalen Austastung 1,5 Vs-s ±0,2 Vs-s wird. **Hinweis:** Dia Oszilloskop-Erdung an die Abschirmung anschlißen.
3	SP REC Farbpegel und Balance  **Abb. 2-4-3**	TP304 •	R321	•PB •MH-2 Farbbalken •SP-Betriebsart •REC und dann PB •Farbbalken •SP-Betriedart	1. Ein Oszilloskop an TP304 anschließen. Das Farbbalkensegment von MH-2 abspielen und dėn Farbsignalpegel beobachten. 2. Durch Drücken der Tasten – und + der Tracking-Regelung an der Frontplatte auf maximalen Pegel der Farb-FM-Hüllkurve einstellen und den höchsten Farbpegel markieren. 3. Den Tracking-Regler an der Frontplatte in Mittenposition stellen, durch gleichzeitiges Drücken der Tracking-Regler + und –. 4. Ein Farbbalkensignal aufzeichnen und wiedergeben. Wenn nötig, vor der Aufnahme R321 einstellen, so daß der höhere Kanal 90% des bei Wiedergabe aufgezeichneten, Pegels wird. Zu diesem Zeitpunkt bestätigen, daß der Kanalunterschild innerhalb von 3 dB liegt.
4	SECAM DETECTOR  **Abb. 2-4-4**	TP351	L353	•SECAM Farbbalken •E-E	1. Ein SECAM-Farbbalkensignal an Video IN anlegen. 2. Ein Oszilloskop an TP351 anschließen. 3. L353 einstellen, um a:b = 3:4 zu erhalten.
5	PB FM Equalizer	MONITOR	R127 (PB FM EQ)	•REC und dann PB •Fernsehsendung	1. Eine Farbsendung aufzeichnen und anschließend wiedergeben, welche ein Portrait zeigt. 2. R127 so einstellen, daß die Gesichtszüge auf dem Farbmonitor gut erkennbar sind.

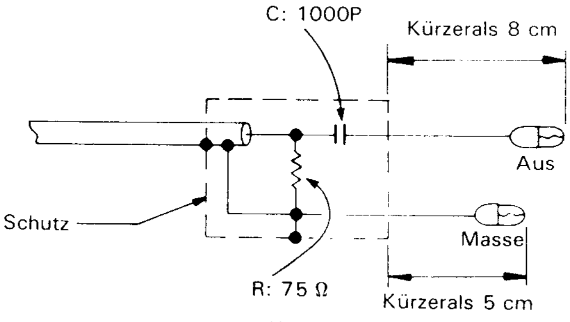
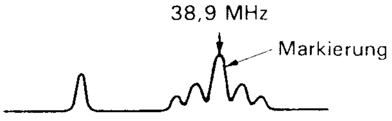
2.5 AUDIO-SCHALTUNG

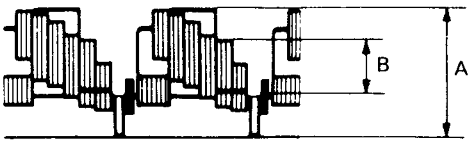
Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der AUDIO-Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	Vormagnetisierung	TP31, TP32	R9	• SOURCE-Einstellung: AUX • SP-Betriebsart • REC • Kein Signal	1. Ein Millivoltmeter zwischen TP31 und TP32 schalten. 2. Auf REC-Betriebsart ohne Signal schalten. 3. R9 auf 2,2 mVrms einstellen.
2	Audio PB pegel	AUDIO AUSG.	R28	• SOURCE-Einstellung: AUX • REC und dann PB • Betriebsart SP oder LP • − 8 dBs/1 kHz	1. Ein Oszilloskop an AUDIO OUT anschließen. 2. Ein Audiosignal (− 8 dBs/1 kHz) an den AUDIO EING. Anschluß anschließen und dann zusammen mit dem Videosignal aufzeichnen und anschließend abspielen. 3. R28 einstellen, um − 6 dBs Audioausgang zu erhalten.

2.6 ZF-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der ZF-Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
	Erforderliche Ausrüstung: 1. Oszilloskop 2. IF-Wobbelgenerator mit geeigneten Marken (PIF, SIF, USW.) 3. Wobbelsonde (Wobbelsignalkabel) wie unten gezeigt.				 C: 1000P Kürzerals 8 cm Aus Schutz Masse R: 75 Ω Kürzerals 5 cm Wobbelsonde **Abb. 2-6-1**
1	VCO  VCO und wobbelsignal **Abb. 2-6-2**	IC1-28	T2 (VCO)	• Wobbelgenerator aus: 70 dBμ (38,9 MHz) • Tuner-Betriebsart ohne Antenne IN	1. Eine Wobbelsonde wie in Abb. 2-6-1 gezeigt verwenden und den Wobbelgeneratorausgang an Pin 2 von SAW 1 anschließen. Die Wobbelverstärkung so einstellen, daß die Hüllkurve nicht verzerrt wird, wie im Oszilloskop gezeigt. **Ein Oszilloskop an Pin 28 von IC1 (VIDEO DET OUT) anschließen und T2 so einstellen, daß die Hüllkurve mit der Frequenzmarkierung wie in Abb. 2-6-2 gezeigt übereinstimmt.**
2	IF Adj.	IC1-28	IF-Kern in Frontstufe	• Wobbelgenerator aus: 70 dBμ (38,9 MHz) • Tuner-Betriebsart ohne Antenne IN	1. Eine Wobbelsonde wie in Abb. 2-6-1 gezeigt verwenden und den Wobbelgeneratorausgang an TP der Frontstufe (TUNER) anschließen. 2. Ein Oszilloskop an Pin 28 von IC1 anschließen. IF Kern der Frontstufe so einstellen, daß die Markierung für 38,9 MHz Maximalpegel erreicht.
3	RF AGC	IF-Klemme der Frontstufe	R21	• Fernsehsignal • Tunerbetriebsart	• **Vor Durchführung der folgenden Anschlüsse:** 1. Ein Kabel an ANT IN anschließen und TV OUT bei 75 Ohm terminieren. 2. Den Fernsehkanalsignalgenerator wie folgt einstellen. Video: 65 dBμ/75 Ohm, Farbbalken 87,5% Modulation. Audio: 55 dBμ/75 Ohm, 1 kHz ±50 kHz Abweichung. 1. Ein Oszilloskop an die Klemme des U/V Tuners (Frontstufe) anschließen. R21 auf Maximalpegel einstellen, und dann erneut R21 auf 6,5 dB Verstärkung einstellen.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
4	Farbpegel  B: magenta A:B= 1:0.48 **Abb. 2-6-3**	JP1-12 (VIDEO OUT)	R40	•Fernsehsignal •Tunerbetriebsart •Farbbalken	1. Ein Farbbalakensignal empfangen. Den Y-Pegel auf 100% Vergleichssignal einstellen und dann R40 auf einen Magentapegel von 48% beim Videoausgang einstellen.

2.7 DEMODULATOR-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der DEMODULATOR-Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	Erste Audio-Detektorspule	IC1 Pin 3	T4 (ZF-platte)	•Betriebsart BILING (Zweitsprache) •SUB: nicht moduliert •MAIN: moduliert	1. Das modulierte MAIN-Audiosignal an die IF-Klemme der Frontstufe anlegen. 2. Den Verzerrungsmesser an IC1 Pin 3 anschließen. 3. T4 der ZF-platte auf minimale Verzerrung einstellen. **Hinweis:** Der Anschluß des Audio-Multiplex-Fernsehsignalgenerators entspricht den folgenden Einstellungen.
2	Zweite Audio-Detektorspule	IC1 Pin 2	T1	•Betriebsart BILING (Zweitsprache) •SUB: moduliert •MAIN: nicht moduliert	1. Den Verzerrungsmesser an IC1 Pin 2 anschließen. 2. T1 auf minimale Verzerrung einstellen.
3.	Stereokanaltrennung	IC1 Pin 5	R2	•STEREO-Betriebsart •R: moduliert •L: nicht moduliert	1. Den Signalgenerator auf Stereo stellen, aber nur den R-Kanal einstellen. 2. Ein Oszilloskop an IC1 Pin 5 anschließen. 3. R2 auf minimalen Ausgang einstellen.
4	Summen	CN2 Pin 2	T8, T2 (ZF-platte)	•STEREO-Betriebsart •R/L nicht moduliert	1. Einen Rauschmesser an CN2 Pin 2 anschließen. 2. Die ZF-platte T8 auf minimales Philips-Rauschen einstellen. 3. Die ZF-platte T2 auf minimales Flächenauflockerung-Rauschen einstellen.
5	Audio-Ausgangspegel	CN2-2 Pin (L) CN2-4 (R)	R21 (L) R24 (R)	•STEREO-Betriebsart •R moduliert/ nicht moduliert •L nicht moduliert/ moduliert	1. Den Signalgenerator auf Stereo stellen. 2. Einen Rauschmesser CN2 Pin 2 anschließen. 3. R21 (L-Kanal) auf −18,0 ±0,5 dBs einstellen. 4. Auf gleiche Weise einen Rauschmesser an CN2 Pin 4 anschließen ud R24 für den R-Kanal einstellen.

2.8 SWITCHING REGULATOR-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der SWITCHING REGULATOR-Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	Ausgangsspannung	CN1 Pin 1	R9	•Eingeschaltet	1. Ein digitales Voltmeter zwischen CN1 Pin 1 und GND schalten. 2. R9 auf 15,3 ±0,1 V Gleichspannung einstellen.